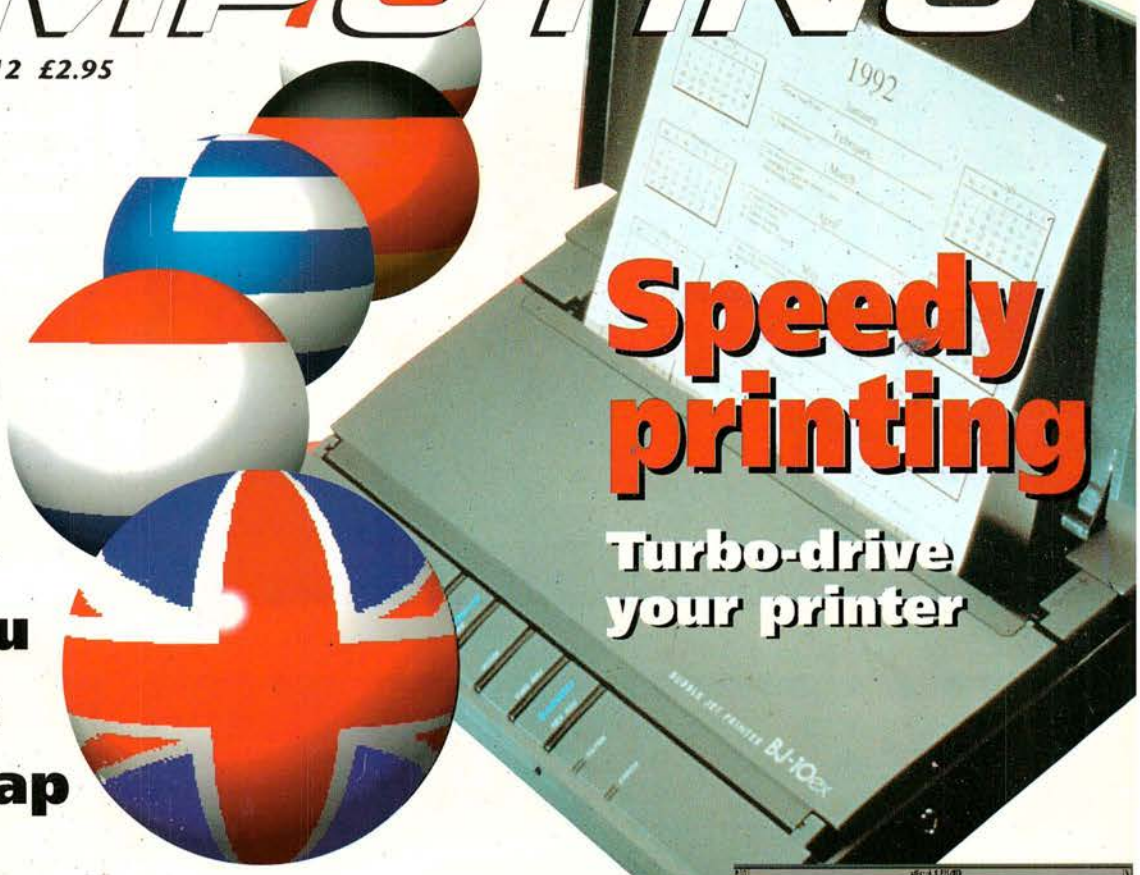
BRITAIN'S BRIGHTEST AND BEST MAGAZINE FOR ACORN USERS

Acorn COMPUTING

FEBRUARY 1993 Vol.10 No.12 £2.95

Formerly THE MICRO USER



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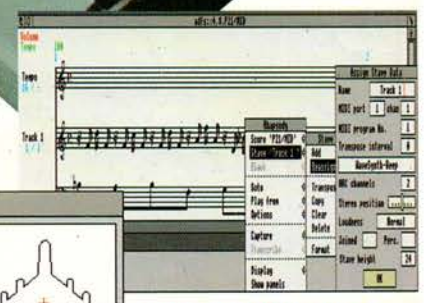
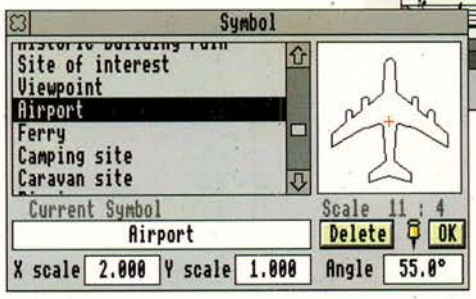


CAD MADE EASY



MAKING MIDI MUSIC

HOT GAMES

HEROQUEST

- BLACK ANGEL
- WOLFPACK
- BRAINGAMES

No coverdisk? ask your newsagent

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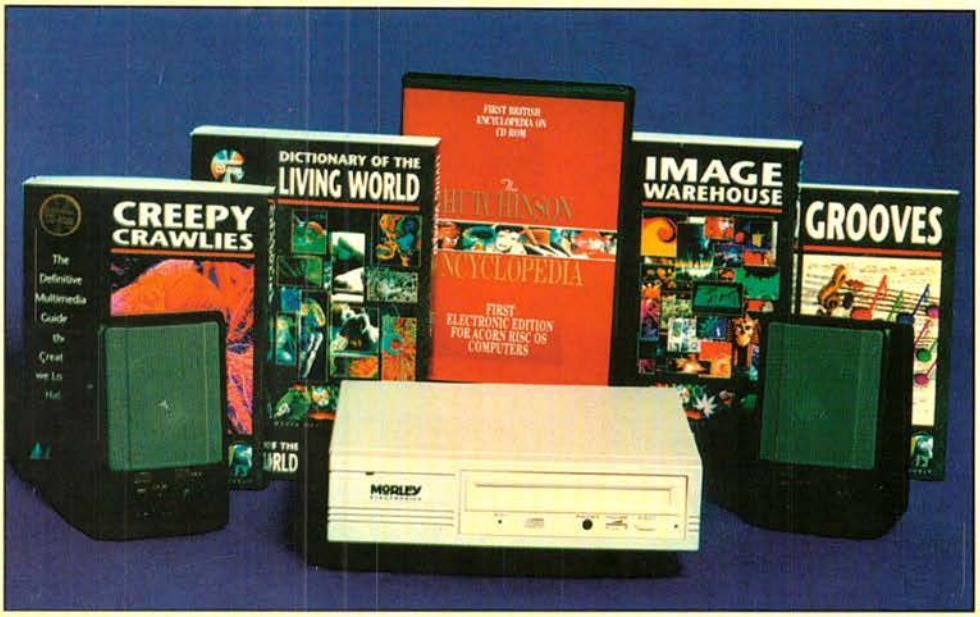
europress PUBLICATIONS

SCSI CD ROM the collections from Morley



Morley Electronics are pleased to announce their new CD ROM bundle for the Acorn ARM powered range of computers. The system comprises of a Morley 16 bit SCSI card, a high quality externally cased CD ROM drive, a set of stereo speakers all cables necessary and a choice of four different collections of CD ROM discs.

The CD discs themselves are all RISC OS format and require no use of a PC Emulator whatsoever. They range from a disc which is crammed full of clip art to an encylopeadia of bugs, slugs and insects with full motion video clips in Acorn !Replay format.

The information on all of the discs can be accessed directly or if desired exported for use in other software. For instance the sound samples on the Grooves disc can be exported straight out to music packages for re-arranging.

The Collections

INCLUDED AS STANDARD

CD ROM Mechanism
16 bit Morley SCSI Card
All Cables
Stereo Speakers

COLLECTION 1
Grooves
Creepy Crawlies
Image Warehouse

COLLECTION 2
Grooves
Creepy Crawlies
Image Warehouse
Hutchinsons Encyclopedia

COLLECTION 3
Grooves
Creepy Crawlies
Image Warehouse
D.O.L.W.

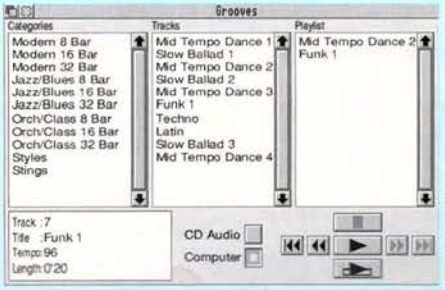
COLLECTION 3
Grooves
Creepy Crawlies
Image Warehouse
Hutchinsons Encyclopedia
D.O.L.W.

Grooves

This is a unique music CD ROM featuring 100 professionally created clips of music. The music varies from classical to funk and the majority of clips are available in 8, 16 and 32 bar samples. The pieces themselves vary from short presentation strings or "musical dingbats" to compostions lasting one and a half minutes.

Using appropriate music software it is possible to build creative 'tunes' demonstrating different musical styles. All the clips come in ready to use formats and users can preview the tracks by using a special application in which an animated jukebox selects and plays the audio versions of the clips.

All samples can be exported as Sound Samples, Modules or as !Replay sound file. All are royalty free for non-profitable use.



Creepy Crawlies

A complete world of bugs, beetles and spiders engulfs the screen right in front of you. This new disc produced by Media Design Interactive has been formed specifically for the RISC OS format.

Offering an exciting introduction to the fascinating biology of these creatures. The information is in the form of text, pictures, narration/voice over and !Replay video material produced by the worlds leading biologists. A very useful feature is that the text descriptions can be set to display for either Key Stages 2/3 or 1/2.

Text, Sprites, !Replay frames and narration can all be exported directly for use in other programs.

Black Scorpion
Black Scorpion
Vejovis Springerus
Scorpions are less common than spiders. They live mainly in hot tropical countries, and feed at night on insects and spiders. Scorpions catch their prey with their strong pincers - they sting their victim to immobilize it, and can move very rapidly as you can see in the video sequence.

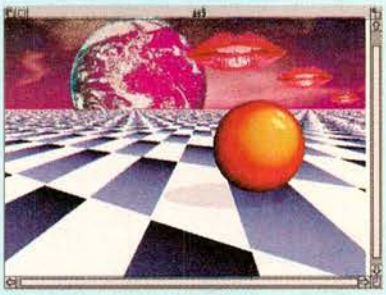
Image Warehouse

The colour Image Warehouse is a vast selection of professionally created high quality images ideal for use in DTP, presentation and artwork in general.

The warehouse consists of five main sections as follows:

Artwork
Scans
Textures
Clip Art
Backgrounds

All images are in Sprite format in large and small Modes 15,28 perfect for use on all Acorn computers and monitors from the A3000 upwards. All are royalty free for non-profitable use.

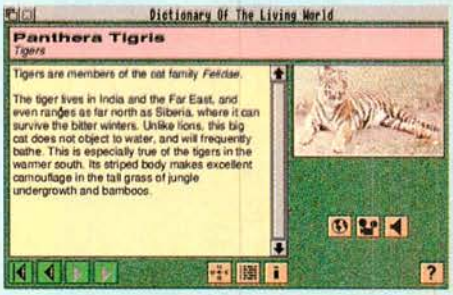


Dictionary Of The Living World

This multimedia encyclopedia of Life on Earth incorporates text, pictures, sound, and !Replay video scenes. More than 2500 text entries are supplemented with over 1000 pictures, 100 animal sounds and 100 full motion video clips.

When a small picture such as the one below appears, the user simply double clicks in the picture and it is immediately displayed full screen in full 256 colours.

Ideal for educating students from 10 years upwards the Dictionary of the Living World can teach about the biology of life. All of the sprites and text files can be exported for later use and the !Replay video files can also be shown in isolation.


Dictionary Of The Living World
Panthera Tigris
Tigers
Tigers are members of the cat family Felidae.
The tiger lives in India and the Far East, and even ranges as far north as Siberia, where it can survive the bitter winters. Unlike lions, this big cat does not object to water, and will frequently bathe. This is especially true of the tigers in the warmer south. Its striped body makes excellent camouflage in the tall grass of jungle undergrowth and bamboos.

Hutchinsons Encyclopedia

This exciting CD ROM version of the Hutchinson encyclopedia is an up-to-date reference for vast amounts of informations available in seconds.

The package is fully RISC OS compliant and has over 25,000 entries and 7,500 biographies listed in its information. Searches can be carried out quickly and easily and then the results fine tuned even further by allowing further searches to be carried out on those that were successful from the first.

A very useful feature of the software is that all text and sprites can be exported from the software for use in projects or reports that you might be working on.

Individual Prices

CD ROM Collection 1	*£649.00*
CD ROM Collection 2	*£729.00*
CD ROM Collection 3	*£769.00*
CD ROM Collection 4	*£849.00*
CD ROM drive (External)	*£439.00*
CD ROM drive (External) & SCSI interface	*£489.00*
CD ROM drive (External) & cached SCSI interface	*£539.00*
CD Caddy	*£6.25*
External Loudspeakers	*£21.28*

RISC OS CD ROM DISCS

Creepy Crawlies	*£99.00*
Grooves	*£59.00*
Image Warehouse	*£59.00*
Dictionary of the living world	*£175.00*
Hutchinsons Encyclopedia	*£99.00*
Frontier 2000	*£175.00*
Revelation 2	*£139.00*

CD ROM collections are suitable for all Acorn computers with 16 bit expansion slot. Some CD discs require 2MB RAM minimum and a multiscan monitor is recommended. All prices exclude VAT and carriage. E&OE Specifications subject to change. All trademarks acknowledged.

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Acorn

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Euro-speak

Find out which programs you can use at home and in school to improve your comprehension of the major European languages

See page 33

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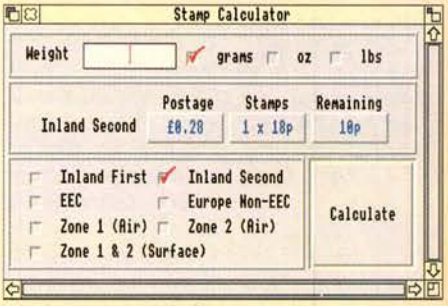
Acorn COMPUTING
MegaDisk
No. 5
EGO: REPTON 4
Rebuild the famous and infamous in this race against time puzzle
BADGER TRAILS
Adventure into the unknown world of the badger
MICRO-TRADER
Try before you buy with this complete demonstration of the premier business package for Acorn machines
EXCLUSIVE SUPERIOR SOFTWARE

Find out about the programs on this month's MegaDisk by turning the page

February subscription disk

This month's exclusive *Acorn Computing* subscriber-only disks feature an excellent selection of quality software.



● *The price is right?*

The Archimedes disk contains:
- A unique celebration Generator
- Mailshot cost calculator
- Easy macro utility
- Up-to-date reviews listing
- Plus the best of PD software

The BBC Micro disk contains:
- Mode 2 Graphics package
- Sand simulation
- Two-player arcade game
- Valentine generator

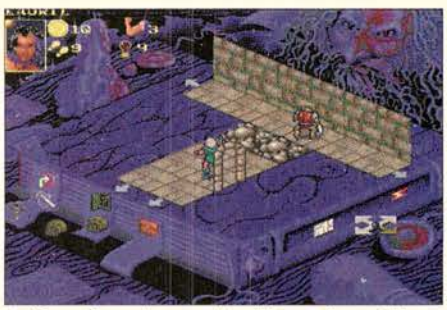
WIN £200

We want to know all about you and need your opinions about the future editorial in *Acorn Computing*. To help us, turn to page 79 and fill in the reader survey.

Plus you get the chance to win £200 cash in our easy-to-enter competition.

Bargains are back!

Turn to the reader classsified ads on page 54 and snap up the buy of the year.



● *Quest for a hero – check it out Page 61*

The editorial and many of the advets in this magazine were prepared using Impresssion and ArtWorks by Computer Concepts. The cover ball flags were produced with Clares' Illusionist package.

EXCLUSIVE SUBSCRIBER DISKS

See pages 27, 28, 30, 31

The MegaDisk

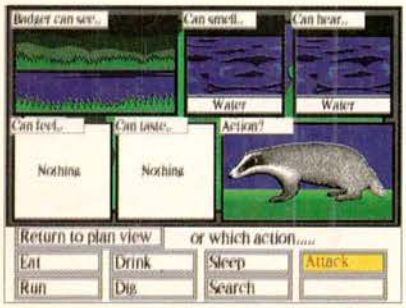
THIS month's disk presents you with three sides of the Acorn software market – education, entertainment and business.

If you're in game mode there's Repton 4, the latest sequel to the classics that took the BBC Micro world by storm. It's a puzzle game that will have you scratching your head for hours.

Badger Trails is a unique educational adventure game that will have you riveted to your monitor as you try to return to your sett.

Finally the Micro-Trader demo will allow you to explore a package that could help you run your business.

Badger Trails: A stunning landscape of adventure



Badger Trails is Sherston's (0666 840433) brand new simulation for the Acorn 32-bit range of computers.

Written by their best-selling authors Simon and Sue Hosler, it is an exciting multimedia pack all about one of Britain's favourite animals.

In the adventure a badger has strayed into a horse box full of hay and is accidentally carried miles away from its familiar territory. Lost and hungry, the badger needs help to find its way back home. Using the full graphic facilities of the Archimedes to represent how a badger perceives its environment, Badger Trails lets you experience life as one of these fascinating creatures.

Taking the role of the lost badger you have to fulfil a number of tasks essential to survival as you explore the mapped area trying to find you way home. You'll need food and fresh water and avoid danger.

This month's MegaDisk contains one day in the life of the badger while the full Badger Trails package includes a full colour booklet with various resources all about badgers both on disk and paper.

Badger Trails costs £35 which includes a specially produced video that follows the discovery of one of the biggest setts in Gloucestershire. Intended as the ideal way to introduce to the adventure, the 30 minute video follows the construction of a hide to observe the badgers at play and includes some charming shots of the badgers and their cubs.

Superior Special Offer

When you play Ego: Repton 4 there are four words at the bottom of the screen. Quote these when you order your full version of the game from Superior Software and you'll get £4 off the RRP

Repton 4: An art expert's nightmare

The latest 32-bit game from the Superior Software (0652 658585) stable is the debut of a new member of the illustrious Repton family, Ego.

Heralded as the wisest of his race he is prepared – with your help – to rebuild puzzles against the clock while avoiding androids and black holes. It is also a good way to refill the family coffers as the puzzles are surrounded by diamonds.

You start with three Egos and a bonus Ego is awarded if your score reaches 10,000 or if you find and drink a life potion. Puzzle pieces are scattered around one-way conveyer belts, trees which a little push reveal pathways or gems, or towers also

with hidden jewels.

A joystick or keyboard can be used to complete the puzzles and the game controls are:

Z	Move left
"	Move up
X	Move right
?	Move down
Return	Start
S	View statistics
Control+Q	Quit

These can be redefined using the options screen and some extra keyboard controls will help you refine your gameplay:

M	See map
P/O	Pause on/off
Control+S	View Statistics screen
Control+F10	Quit to introductory screen
Control+2/3	Music volume up/down
Control+6	Character Fade on/off
Control+Escape	Lose an Ego (useful if trapped)
Control+1	Keyboard/joystick toggle
Control+4/5	Sound effects up/down
H	See completed puzzle (first puzzle only)
I	Zoom in on puzzle piece carried

Getting started

THE programs on this disk are stored in a highly compressed format which sometimes enables as much as 1.6Mb of programs and data to be stored on a 800k floppy disk

The procedure for running the programs is very straightforward and does not require learning any special methods or techniques.

Switch on your Acorn micro, put the disk in the drive and click the drive icon. The software that unpacks the programs, ArcFS 2, loads automatically ready for use. Double-click the Acorn Computing icon, the screen switches to the Acorn Computing logo and then, after a few seconds, back to the Desktop but now there's another window available.You can treat this new window just like any other one for viewing disk contents, you can run programs and open directories just by double-clicking them.

We recommend that you always read the !ReadMe files or access the help information via the Filer menu. See your Risc OS manuals for details.

5.25in and 3.5in disk offer for BBC Micro users

We are making a special offer available to readers of *Acorn Computing* with a BBC Micro.

We will be happy to replace this month's *Acorn Computing* cover disk with either a 5.25in or 3.5in BBC Micro disk. All you have to do is detatch the disk in its bag and return it, together with the form below, enclosing a 50p coin to cover part of the cost of post and packing directly to *Acorn Computing*.

Please note that the replacement disk you receive will not include Repton 4, Badger Trails, or Micro-Trader as these programs are not available for the 8-bit BBC Micro.

● *Offer available only within the United Kingdom*

Faulty disk

The cover disks are tested at every stage of production, but inevitably when such a large batch is duplicated, one or two bad ones will slip through.

If you receive a faulty cover disk it will be replaced free of charge. Send it with your name and address to:

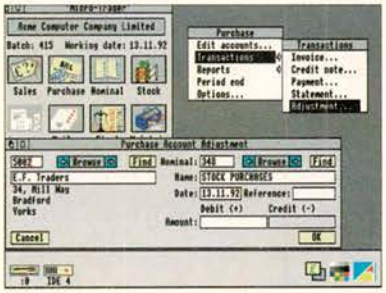
Stanley Precision, Unit F, Cavendish Courtyard, Sallow Road, Weldon North Indusrial Estate, Corby, Northants NN17 1JX.

If you damage the disk yourself, send it to the same address, but include a cheque or postal order for £1 (5.25in disk) or £1.50 (3.5in disk).

If the disk has been damaged in transit, return it to:

Europress Direct, Freepost, Ellesmere Port, South Wirral L65 3EB.

Micro-Trader Business System



On a more serious note the Micro-Trader Business System from PRES (0276 472046) is a high quality range of business accounts programs. It consists of a number of modules that build up to form a powerful, easy-to-use and flexible system. In addition to running more than one program at once, multi-tasking is also possible in each program, so that more than one operation can take place at any time.

The Micro-Trader Business System is fully integrated. This avoids repetitive entries, and ensures that the information is always up to date. The high capacity integrated accounts system is made up of Sales, Purchase and Nominal Ledgers.

This provides a first class, easy to use, time-saving method of computer accounts for the small to medium sized business. All the normal accounting requirements are included for both wholesale and retail businesses and it can also be used in education and for business studies. The entry of information is quick and simple.

The time spent using a manual system can frequently be reduced, and much more comprehensive information will be instantly available. The facilities are flexible to the requirements of the business, and can be extended as the business grows.

The system complies with VAT requirements, including the new VAT Return for the single market and the new EC Sales Listing.

The Sales Invoice layout is user defined both on the screen and on the paper. It can include details of stock sold, discounts and a delivery address.

The space available for the description of work done can be enlarged for a *service* business where a large amount of text can be entered using wordprocessor-type facilities.

The layout of all other documents can be user defined and new reports created.

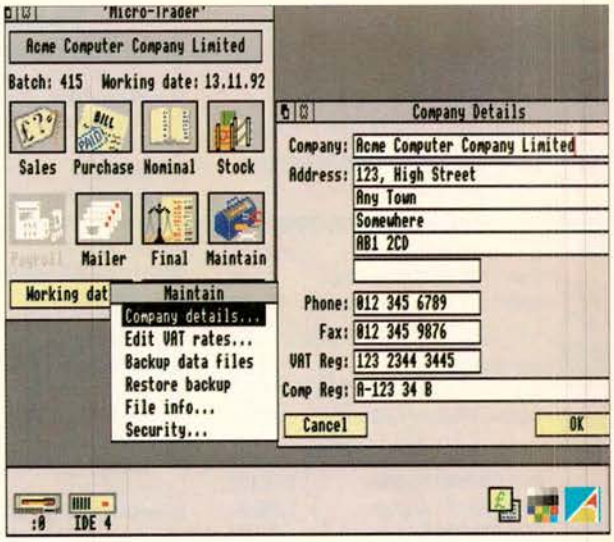
The Stock Control program is high capacity and can stand alone or be integrated with the accounts programs. The program stores the details, prices and quantities of each stock item and gives full stock held information on a monthly and year to date basis. Full Invoice printing facilities are included.

The Mailing program prints labels and personalised letters from the names and addresses stored in the Sales and Purchase Ledgers. Additional information can be stored in a user-defined database.

The Payroll module stores the employee details. Employees can be paid regular wages, or individual timesheets can be entered for the hour worked. Facilities for other items such as overtime, bonuses and pensions are provided. Payslips are calculated and printed showing the amount paid and tax and NI deductions. SSP and SMP can be included and the program provides printouts that meet Inland Revenue requirements.

A comprehensive Product Support Service with unlimited telephone support is provided to answer any questions that may arise while setting up or running the program. Thirty days' free product support is included and after this there is a small charge.

The Sales Ledger, Purchase Ledger, Nominal Ledger and Stock Control modules cost £79.95 with a complete system consisting of all four modules costing £279.



Micro-Trader won't run from within the archive on the MegaDisk so you'll need to transfer the file to another floppy disk or hard disk. In the file there are samples which have been set up so you can manipulate the information between the modules seeing how they work and exploring their potential.

Badger help

- Find three different types of food
- Find fresh drinking water
- Find a safe way to reach the other side of the main road

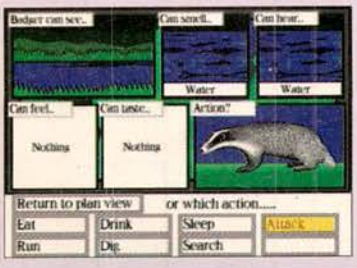
As a badger you can use your senses and skills to help you meet your needs, but be aware of your weaknesses and avoid the dangers.

Senses: You have poor eyesight, so you need to use your other senses such as smell and hearing.

Skills: You are very good at digging. As well as digging a sett to live in, you can use your strong claws to uncover food.

Weaknesses: You are not very fast at running after food or away from danger. Although you can swim it might be safer to find other ways across water.

Dangers: Humans are a badger's main enemy. They sometimes carry guns and often drive in fast cars. You have the advantage of being able to read a map to help find your way.



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Sat 10.00 - 17.00

FAX: 061 766 8425

New Acorn Hardware

Official Acorn Publishing Dealer

A540 4Mb Ram, 120Mb HD	£1995.00
A4 4/60 Mb HD Portable c/w Acorn shoulder bag	£1699.00
A4 2 Mb FD Portable	£1399.00
A5000 / 2Mb Ram, 80Mb HD, Arm 3, Acorn Multiscan Monitor	£1399.00
A5000 / Learning Curve / 2Mb Ram as above c/w software	£1445.96
A5000 / 4Mb Ram, 120Mb HD Arm 3, Acorn Multiscan Monitor	£1599.00
A5000 ES - Econet System Arm 3, Acorn Multiscan Monitor	£1299.00
A5000 NS - Network System Arm 3, Acorn Multiscan Monitor	£1399.00
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A4000 Home Office Multiscan System Arm 250, Acorn Multiscan Monitor	£1049.00
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We operate the Acorn Teacher and Academic Schemes

Please call for free information pack

A540 Upgrades

4Mb Ram Upgrade	£369.00
Taxan 795 VIDC Modes Disc	£7.50
Technical Reference Manual	£65.00

A5000 Upgrades

2Mb Ram Card	£110.00
Dust Cover (One piece)	£12.95
Technical Reference Manual	£65.00

A4 Upgrades

A4 2 MB RAM Upgrade	£110.00
A4 60 MB HD Upgrade	£350.00
A4 Battery Pack	£50.00
A4 Econet Upgrade	£50.00
A4 Shoulder Bag	£35.00
A4 Technical Reference Manual	£65.00

A3000 Upgrades

1 Mb Ram A3010 (2Mb in total)	£49.00
1 Mb Ram (2 Mb in total)	£55.00
4 Mb Ram	£139.00
20 Mb Int Hard Disc (IDE)	£199.00
5.25" External f/disc buffer	£39.00
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A400 Upgrades

1 Mb Ram	£35.00
2 Mb Ram	£65.00
3 Mb Ram	£99.00
5.25" Ext. floppy disc int.	£39.00
Econet Module	£46.00
VIDC Enhancer	£29.00

RISC OS 3

RISC OS 2 -> 3 Upgrade	£41.70
RISC OS 3 -> 3.10 Upgrade	£16.17
RISC OS 3 Hardware Kit A300	£25.00

Expansion Cards

Econet Module	£46.00
Floating Point Expansion Card	£449.00
Hawk V9 Video Digitiser	£199.00
I/O Expansion Card	£79.00
Midi Upgrade to I/O Card	£27.00
Midi Expansion Card	£65.00
ROM Expansion Card	£45.00
SCSI Expansion Card (Acorn)	£229.00

ROMBO Colour Digitisers

A3000 inc. podule housing	£72.30
A400 / A5000	£72.30

Aleph 1

Arm 3 Upgrade	£199.00
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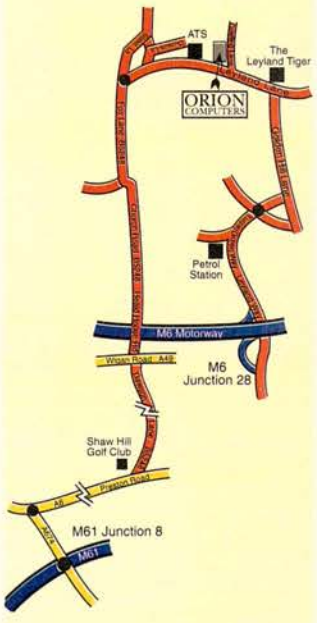

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RiscBASIC Compiler	Silicon	£79
RiscForth Compiler	Silicon	£79
Risc OS Companion Vol 1	Oak	V0 £49
Risc OS Extras 1992	Acorn	£9
Risc OS Programmer's Reference Manual	Acorn	V0 £79
Risc OS Style Guide	Acorn	V0 £11
RoboLogo	Silicon	£39
Round the World Yacht Race, age 9+	Storm	£29
Sales Ledger	Minerva	£78
Saloon Cars Deluxe	Fourth Dim	£24
– Deluxe Extra Courses	Fourth Dim	£16
Schema	Clares	£89
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£45
Scorewriter	EMR	
– PMS Dot matrix, Version 1		£127
– PMS Dot matrix, Version 2		£147
– PMS PostScript		£422
ScreenPlay	Widgit	£35
ScreenTurtle	Topologika	£44•
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Sesame Street	Electric Crayon	
– Letters for You		£16
– Numbers Count		£16
SFXM	CIS	£42
ShapeFX	Data Store	£10
ShareHolder	Silicon	£106
ShareHolder Professional	Silicon	£234
ShowPage	CC	£149
Shylock Gnomes, age 10-15	Selective	£19
Sim City	Krisalis	£19
SkyHunter	Longman	£22•
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *Please specify English, French, German, Spanish or Welsh – each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
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SparkFS	David Pilling	£20
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Spheres of Chaos	Matt Black	£20•
Splice	Ace	£29
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Sporting Triangles	CDS	£20
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StockPack	Topologika	£39
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
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– Reference Guide	Minerva	V0 £25
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Tools Graphics, drawfiles	Micro Studio	£23
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Touch Type	Iota	£39
Tower of Babel	Cygnus	£17
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Tracer	Midnight	£46
Tracker	Leading Edge	£37
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Special price when you buy an A3010 with an ICS internal hard disc upgrade:		
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– Family Solution + 60 Mb hard disc		£699
– Family Solution + 80 Mb hard disc		£759
– Family Solution + 120 Mb hard disc		£859
A3010 2MB FD Learning Curve with Monitor	Acorn	£675
– as above + JP150 Printer		£889
A3020 2MB FD	Acorn	£749
A3020 2MB HD60	Acorn	£899
A4 2MB FD	Acorn	£1395
A4 4MB HD60 with free PC Emulator 1.8 until Christmas	Acorn	£1695
A4 4MB HD80	Acorn	£1795
A4 4MB HD120	Acorn	£1895
A4 Extra Battery Pack	Acorn	£50
A4 Shoulder Bag	Acorn	£35
A4000 2MB HD80	Acorn	£945
– as above + Home Office		£995
A5000 2MB HD80 Multiscan	Acorn	£1395
– as above + Learning Curve		£1455
Pocket Book	Acorn	£212

MISCELLANEOUS . . .

386 PC Expansion Card 25 MHz	Aleph One	
– 1 Mb		£374
– 4 Mb		£468
486 PC Expansion Card	Aleph One	
– 1 Mb		£463
– 4 Mb		£557
4-slot 4-layer Backplane	IFEL	£57
9060S Monitor	Eizo	£450
A300/400 Fan kit	ICS	£15
A310 RISC OS Carrier Board ‡	IFEL	£21•
A5000 Fitting Kit for second hard disc	ICS	£15
Arckey Function KeyStrip Holder	ICS	V0 £3
– pack of 4		V0 £10
ArcNET	ACS	£69
ARM3 ‡	Aleph One/IFEL	£175
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Dongle Dangle with screw fittings	ICS	£6
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G8 Plus Video Switch	State	£23•
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– Archimedes / A5000	Kador	£14
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– bought with Oddule		£5

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A3000 2 Mb Upgradable †	IFEL	£45
A3000 4 Mb †	Atomwide/IFEL	£110
A3010 1-2 Mb		£49
A310 2 Mb Upgradable soldered ‡	IFEL	£88
– as above + MEMC1a		£124
– as above + MEMC1a + fitting		£154
A310 4 Mb soldered + MEMC1a ‡	IFEL	£180
– as above + fitting		£210
A5000 2-4 Mb Non-upgradable †	Atomwide	£85
A5000 2-4 Mb Upgradable †	IFEL	£85
A5000 2-8 Mb including fitting	Atomwide	£500
A5000 4-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Atomwide	£POA•

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ArcLaser 300-6	Calligraph	£895
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Bubble Jet BJ-20	Canon	£255
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Laser Direct HiRes8	CC	£1280
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– with Sheet Feeder	CC	£360
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– A3000 internal	CC	£190
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– A3000 version	Lingenuity	£275
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Vision Digitiser	HCCS	
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– A3000 External Colour		£92
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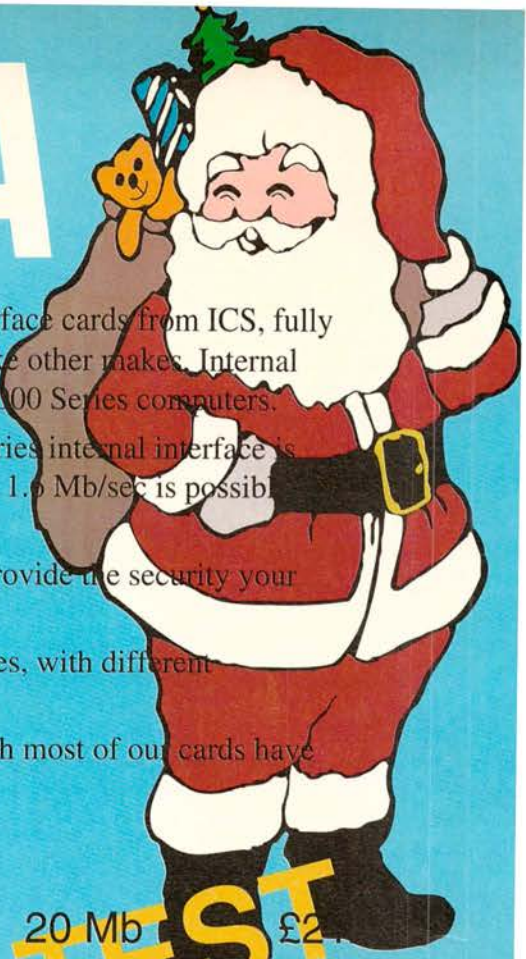

ideA'92 is the name of a new generation of IDE interface cards from ICS, fully compatible with RISC OS 2, 3 and 3.1. Unlike other makes, Internal Hard Disc Upgrades from ICS will fit neatly inside the new A3000 Series computers.

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Just playing games

THE biggest mistake that Commodore (who make the Amiga) and Atari (with the ST) made this year was in recognising who actually is their competition.

For many years the Amiga and the ST were the machines that you bought if you wanted to play really good games. After all, the old BBC Micro couldn't match up, PCs were for business and Macs were just too expensive.

There was the added advantage that both machines used the same processor at their heart so game conversions were relatively easy between the two – any games producer had a double market before he even started.

As a side issue this was a problem for the poor old Amiga because it had far superior graphics and sound capability to the ST but because games were written for both the extra power was mostly ignored.

But games weren't the only programs written for these machines – they had the full range of drawing, painting and DTP tools – and especially music on the ST. But the public perception for these machines always remained as *games machine*.

Then came the games console. Oh dear.

As Sega and Nintendo battle it out for the biggest share of the new computer games playing public two innocent bystanders are getting mowed down in the crossfire.

Well not completely innocent: Perhaps you saw the Amiga TV advert? Macho Terminator-style cyborg beams down and detects young male person using paint program on his computer. Cyborg breaks into the room, young male person switches to game featuring cyborg and blows him to bits on screen. Real cyborg disappears. Switch to view of product – the Amiga – and final text.

There's an attempt to imply that the Amiga can be used for something other than just playing games but it's such a minor part of the whole sequence it gets lost amid the zapping.

And what about the ST advert? What ST advert? I don't think there is one, but if there was it would probably be similar.

Commodore and Atari are the victims of their earlier success – and now the games consoles have not only stolen their crown but crushed their thrones underfoot, without even noticing. The two former kings probably don't know what's hit them.

As far as Acorn are concerned this was another war they didn't need to engage in. Against opposition such as Sega and Nintendo the idea that Acorn *could* be in competition is totally ridiculous. Like a fly trying to swat a man.

Instead Acorn aimed at concerned parents. It's interesting to note that from the feedback we've had concerned parents really liked the Acorn ad campaign, but those people who were not the target didn't like it. Very precise targeting by the advertisers.

Of course it did result in battles: Between children who wanted a games console because of peer-pressure and parents who wanted to buy an Acorn machine for their children because it's more useful – and you can play games too.

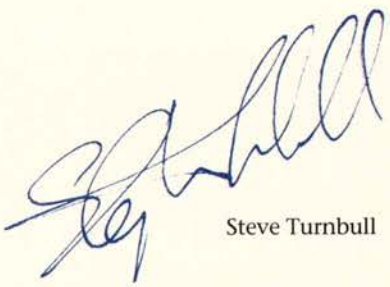
The Acorn machines may never see Sonic the Hedgehog or Mario – try asking how much the licence is before you even start programming – but the most popular games on other formats will appear.

Of course, game conversions won't use the full power of Acorn's superb micros (unless they're high quality ones converted from the PC) but they alleviate the peer-pressure argument of *but he's got Super Zapper Kong, why can't I have one of those?*

Meanwhile a dedicated few produce games that do utilise what our 32-bit powerhouses have to offer.

So let's have a moment of silence for the old soldiers of the games world who are fading away and keep faith with the machines that do a lot more than just play games.

> Commodore and Atari are the victims of their earlier success



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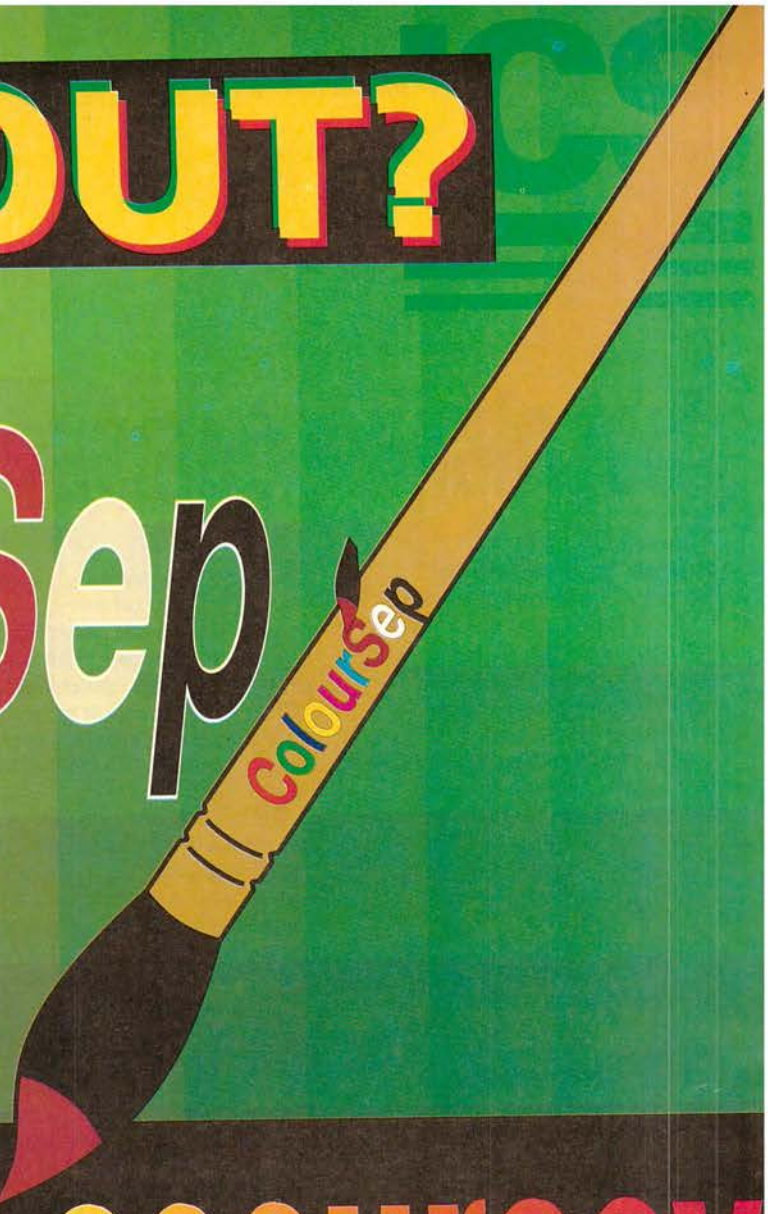

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(We only hope this magazine advert is as good!)

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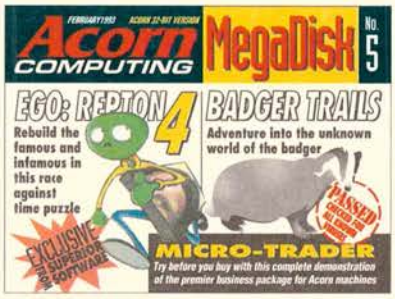
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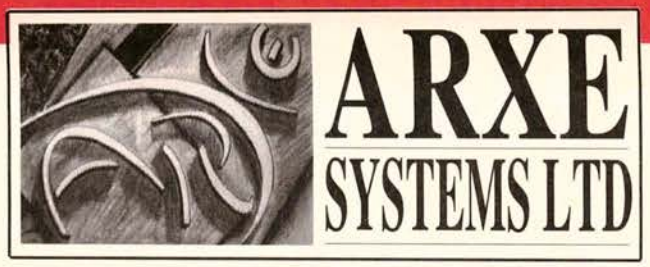

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- ChromaBurst, a true 24 -bit graphics subsystem which will allow displays of 1024x1280 in true 24 -bit colour.

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Due to continual growth, Arxe Systems is looking to expand its software and hardware range with new products in 1993. We are looking for innovative hardware and software designers to join our team. If you either have an idea or a complete product, please write in confidence supplying as much information as possible.

Ring for our product brochure for full details, or better still, come and see us at the BETT '93 Show in January.

Arxe Systems Ltd. P.O.Box 898, London, E7 9RG
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Seriously good shows

ACORN'S Seriously Bad Tour made a two-day appearance at the Newcastle Metro Centre on December 8 and 9. The tour is aimed at showing families the wealth and breadth of applications that can be run on Acorn machines including wordprocessing, desktop publishing, drawing, music, business packages and educational software – plus games.

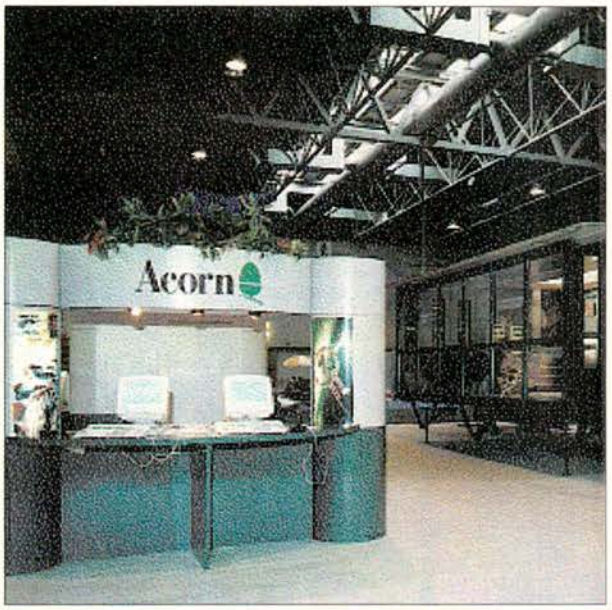
The tour complements Acorn's TV advertising campaign which uses an innovative split-screen technique with a father and son talking simultaneously from their own perspectives.

A particular feature on board Acorn's trailer is the Quest for Gold Challenge, based on the successful track and field simulation game, in which contestants test their athletic prowess against one another.

The game is based on a real life athletics training programme as devised by the Chafford Hundred group of athletes under the direction of Fatima Whitbread. Indeed many of the top British athletes such as Linford Christie, Sally Gunnell, Steve Backley, Dalton Grant and Colin Jackson have been intimately involved with this game since its inception.

The tour made its debut at the Gamesmaster Live Show held at the Birmingham NEC in early December. Acorn had a significant presence at the show which is a live version of Channel 4's popular computer games programme.

Parked in the middle of the stand was Acorn's Seriously Bad exhibition trailer surrounded by a large games arcade running many of the 250-plus leisure titles currently available for the Acorn range of computers.



● *Acorn had a significant presence at the Gamesmaster Live Show*

Recognising that some parents felt intimidated by the array of games on show at the NEC, Acorn provided a *safe haven* in the parents' creche.

Commenting on Acorn's presence at Gamesmaster Live, Acorn's consumer marketing manager, Simon Lovesey, said: "We believe our presence at this show improved the credibility of our computers among the games playing fraternity and opened their eyes to the other features that should be available to home computer users."

Video power unleashed

ARM have now completed the VIDC20 video controller which has been designed to meet the needs of a range of video systems from those in portables to high powered desktop computers.

The controller gives you the ability to display up to 16 million colours at VGA, SVGA and XGA resolutions. However, because of its low power architecture it will drive the LCD screen of a portable computer directly while preserving battery life. It can be used to generate up to 32 bits per pixel at data rates of up to 160Mb/second.

The VIDC20 also comes with sophisticated audio support while being fully compatible with previous VIDC capabilities and gives up to eight channels of stereo sound. The linking of sound and vision in a straightforward interface to dedicated sound controllers is needed by a great many high quality multimedia applications.

Commenting on the chip, Acorn's Malcolm Bird remarked: "The VIDC20 is one in a new series of high performance chips from ARM Ltd that keeps the ARM component set at the forefront of cost effective technology. We are leading the test validation programme for the device and anticipate including it is future generations of computers".

Forthcoming entertainment

TBA Software – a new games company – are about to release Dragonball heralded as a fast-paced version of a classic arcade game with new and exciting twists.

TBA have several projects in line for 1993 but Dragonball will be their first commercial Acorn game and will retail for £14.99.

Further details can be obtained from: TBA Software, 24 Eastgate, Aberystwyth, Dyfed, Wales SY23 2AR.

Games in your pocket book

ACORN's PocketBook can now be used for a bit of light relief courtesy of Widget Software (0483 815444) with their Games Pack 3.

This compilation of five games costs £49.95 including VAT and offers Poker, Solo, Reversi, Bandit and Quad. All come with a help feature and even a few hints on how to cheat.

Home is where the office is

THE 7th International Computer Show is scheduled for 19-21 February at the Wembley Exhibition Centre in London where this year's emphasis will be on the home office and in line with this Acorn are one of the major attractions.

Sponsored by Acorn Computing the show is designed to display the latest technology.

Tickets and further information are available from Westminster Exhibitions on 0726 68020.

Rock bottom prices

SOFT Rock Software sales are now available on a freepost address: Soft Rock Software, FREEPOST (BS7978), Westbury-on-Trym, Bristol BS10 7BR.

DABS PRESS

THE ACORN BOOKSHELF

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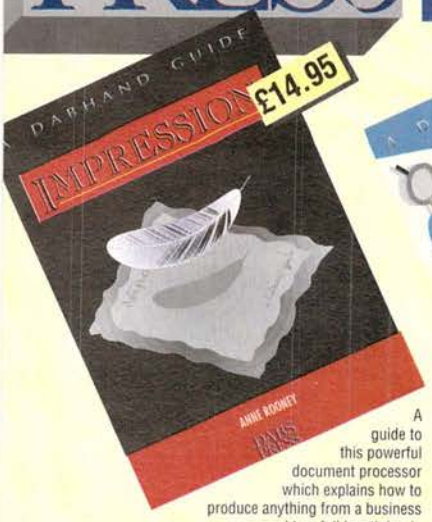
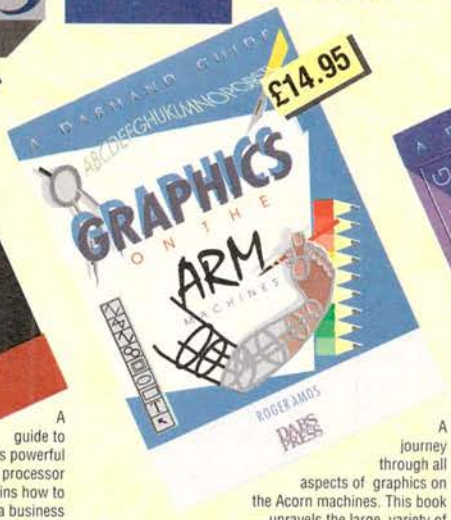


£14.95

A guide to this powerful document processor which explains how to produce anything from a business card to a full length book.



£14.95

A journey through all aspects of graphics on the Acorn machines. This book unravels the large variety of programs available for all illustrative and graphic work, scanning and picture manipulation. Extensive colour plate section.

£13.95

A step-by-step guide that takes you through all the features of 1st Word Plus on the Archimedes, from installation to mail-merge,

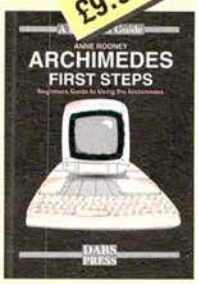
Disc available at £7.95 inc. VAT or £21.90 for book and disc.

£16.95

This highl acclaime popular account of th C programming language i the most detailed yet written. Packe with useful example programs and written in clear in efficient way, the third edition of the book boasts even more information than befor

£12.95

The book that will save you money. Takes you step by step through all aspects of DTP on the Archimedes

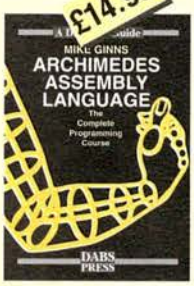


£9.95

Introductory book for the Arc, covering the basic operations and use of !Edit, !Draw, etc.

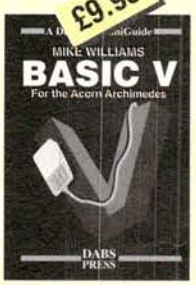
£14.95

Useful summary of OS information with detailed examples. (£21.95) with disc.



£14.95

The only tutorial and reference on ARM assembler on the market, with many RISC OS examples. (£21.95 with disc.)



£9.95

A practical guide to programming in BASIC V on the Acorn Archimedes, with a wealth of easy-to-follow examples.

THE BBC BOOKSHELF & MORE

BBC SOFTWARE

Hyperdriver The ultimate printer driver ROM, with over 80 commands, a built-in NLQ character set, WYSIWIG previewing, access from View, Wordwise, Interword or BASIC. 100 page manual. For B/B+/E/M/C. Price £29.95 ROM, £24.95 disc for SRAM.

Minidriver As HyperDriver but for Mini Office II. Includes Viewdata terminal. £24.95 ROM. SRAM version £19.95.

Mos Plus Utility ROM for Master 128s only fixing EDIT and CLOSE#0 bugs, ADFS format, verify and backup in ROM, backup/compacting in SRAM, alarm clock and configurable startup facility and much more. Price £12.95 ROM, £7.95 SRAM.

Sidewriter Pop-up notepad for SRAM users (any SRAM machine), works with any software. Price £7.95.

Fingerprint SRAM or main memory 6502 machine code monitor/disassembler/memory editor. For B/B+/E/M/C/ Price £9.95.

Conversion Kit Ready-made 6502 assembler routines, for learning or development. Price £7.95

BBC BOOKS

View Dabhand Guide Bruce Smith's comprehensive guide to View word-processor. "For those who want a complete thorough and readable guide to View, then Bruce Smith is your man" (Beebug). £12.95 or £17.95 with disc.

Master Operating System David Atherton's definitive reference work including the famous 'differences between all eight-bit models' section used by countless programmers to ensure compatibility across the full eight-bit range. £12.95 or £17.95 with disc.

Mini Office II Guide Detailed tutorial by Bruce Smith and Robin Burton for the BBC/Master versions of the software. Price £9.95 or £14.95 with disc.

Mastering Interpreters and Compilers Fascinating Bruce Smith title on creating high level languages. £14.95 with free disc.

MASTER 512

Master 512 Shareware Collections Two collections of PC shareware, all tried and tested on the 512. Includes WP's, spreadsheets, databases, games etc. Five full 800k discs in each. Each collection normally £29.95, special offer £25 for both.

Master 512 User Guide Full instruction for using the 512 and DOS Plus, with tips on soft-ware compatibility. £9.95 or £14.95 with disc

Master 512 Technical Guide The companion guide with full 512 programming information and hardware expansion projects. Price £14.95 or £19.95 with disc.

ARCHIMEDES SOFTWARE

Instigator Utility system providing disc sector editor, memory editor, disassembler, command line archiving, and much more. Price £49.95

Arc PC Emulator Shareware Similar to Master 512 Shareware but for the Arc PC Emulator. Two collections of five discs each. Normal Price £34.95. Now on special offer, both collections for £25.

ARCDFS Very popular program to provide full DFS facilities on desktop or !65Host /!65Tube. *(Not A5000 compatible).* Price £29.95

OTHER BOOKS

Z88: A Dabhand Guide Introduction to the Z88, by the designers of the machines own software. £14.95

Z88 Pipedream Guide John Allen's detaile work on all aspects of Z88 PipeDream. Goo explanations of printing. Price £14.95

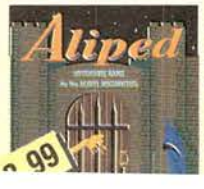
Psion LZ OPL Guide Ian Sinclair's guide to OPL programming o the LZ series of Organiser machines. £12.9

NEW Getting the Most from The Amstrad NC100 Notepad computer Ian Sinclair's guide to this popular new notepad computer, packed with hints and tips on how to get round problems, tackle awkward jobs etc. This is the book to get when you realise that you cannot get full potential from this machine in 5 minutes!!

Alien Images *Excellent Entertainment now at LOWER PRICES!!*

£13.99

"Harry and Dave manage the laundry firm, but things have been going wrong. They work all night but will they put things right?"
Multi level game, high quality graphics, simple key controls for easy movement of characters. Needs 1MB. RISC OS compatible.
"a great deal of fun" "fiercely competitive"
"to the accompaniment of decent music, effects and humourous speech"
Duncan Evans - ARCHIMEDES WORLD



"Aliped - wing footed like a bat is the spell that has been put on you by the evil step-mother of your fair princess Natasha".
Smooth multi-directional scrolling castle, stunning use of stereo sound, high quality graphics. Needs 1MB. RISC OS compatible.
"Aliped is a sideways scrolling arcade adventure starring you as the bat-winged, red caped crusader."
"Decent looking game" "Worth investigating"

GAMES

£13.99

The date is 2143 A.D., the universe has started to contract, causing the most inner galaxies' fine balance to be upset. Their only chance is you in your humble rescue ship.
Multi level game with high quality graphics. Needs 1MB. RISC OS compatible.

ALERION	Classic shoot-'em-up scroller.RISC OS compatible £14.95.
ARCENDIUM	Draughts, Backgammon, Reversi and Quadline, now RISC OS compatible. £14.95.
ALIEN INVASION	Classic Space Invaders £14.95
ALL-IN BOXING	Realistic boxing game. 1 or 2 player. £14.95.

Orders to Dabs Press Publishing, FREEPOST (PR1327) Leyland, Preston PR5 3BR (Phone 0772 623000)

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8Mb A5000

Risc Developments' (0727 40303) new 8Mb ram card for the A5000 is available for both the 2 and 4Mb version of the A5000. For those who already have upgraded to 4Mb with a Risc card there is a trade-in service. However, due to the design of the A5000 circuit board the 8Mb ram card must be fitted by an Acorn service centre such as Risc Developments.

Deskjet refill

YOU can now refill your Hewlett-Packard DeskJet cartridges and Canon BubbleJet cartridges from £14.95. This new service from Care Electronics (0923 894064) gives you access to cartridges in a range of colours: Yellow, magenta, cyan, red, blue, green, brown, purple and black.

The Care 3 Pack costing £14.95 gives you three refills while for £24.95 you can have six refills with the Care 6 Pack. Care also produce a range of T-shirt printing ribbons for those with an impact printer.

Network advances

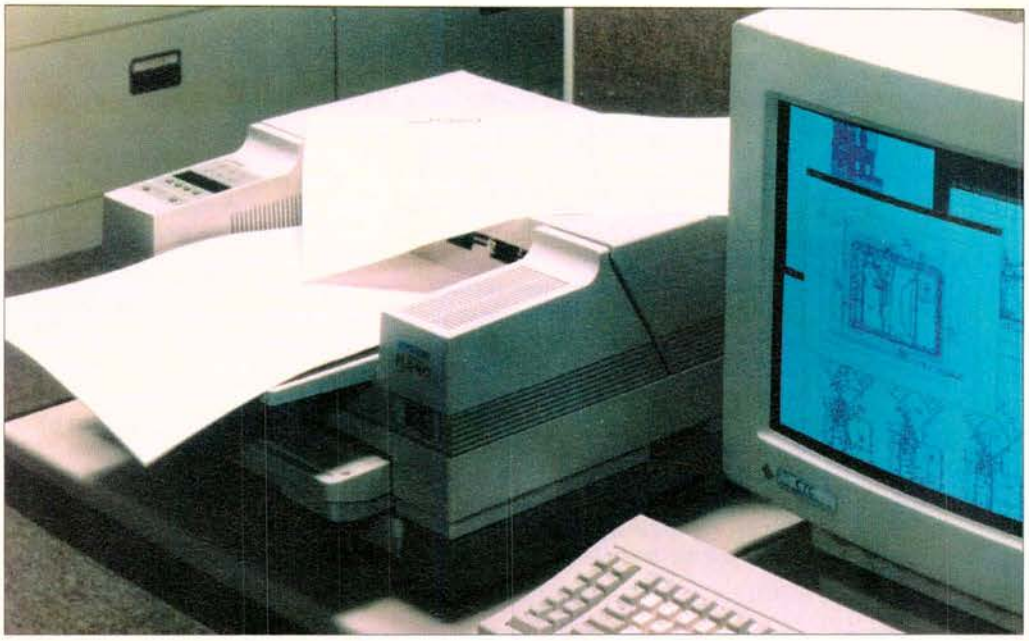
A NEW series of Ethernet cards for the full 32-bit range will be available from mid February from Risc Developments (0727 40303). All the cards will be fully AUN compatible and used in conjunction with Acorn's TCP/IP interface software the provision of Ethernet means that Acorn machines can be connected to industry standard Internet networks used by many UNIX systems.

Risc Developments plan to offer a complete networking service from planning to installation and maintenance.

A card has been developed for the A3000 series and A4000 providing user and analogue ports and an Econet interface all on the same card.

This will allow Econet and Ethernet interfaces to be fitted to an A3020 or A4000 turning the computer into an AUN gateway.

Unusually a boot rom is included which is capable of holding all the code required to run in an AUN environment doing away with the need for floppy disks.



● *Roland Digital's PLX160 plotter offers true 600x600 dpi resolution*

Laser plots

A NEW 600dpi A3 laser plotter which doubles as a printer has been released by Roland Digital (0252 816181). The new PLX160 offers true 600x600 dpi resolution which is aimed at CAD users to five them clear and precise drawings in A3 and A4 formats.

A Risc 32-bit processor powers the PLX160 to ensure that it can handle vector to raster conversion of even the most complex CAD drawings which are produced in two to three minutes. Print speeds average eight A4 and four A3 sheets per minute.

The PLX160 has two media cassette feeders for two types of A4 or A3 paper and it is also equipped with a manual paper feeding system to allow for quick, one-off plots.

The price is £3,450.

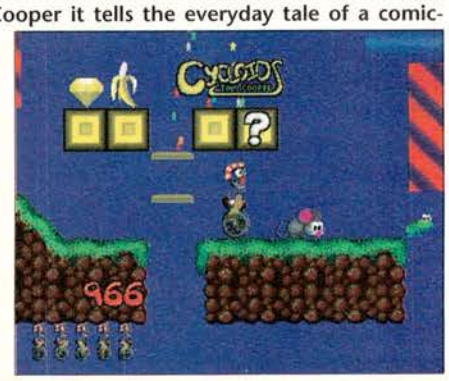
A master stroke

MASTERFILE is now in its third version from Risc Developments (0727 40303). This database is fast and simple to use with its general purpose data management facilities aimed at the home user.

The new version is fully Risc OS compliant and has a completely new user interface. Its features include a comprehensive indexing system which allows data to be accessed in any order. In addition the report generator allows databases to be printed in card or spreadsheet format. Masterfile 3 costs £49 or £5 if you trade in your original disks.

Wheeled adventurer

SOFTWARE 42 are about to release their next adventure for the 32-bit range, called Cycloids. Written by Tom Cooper it tells the everyday tale of a comic-faced unicycle rider.



You can move from left to right and jump to collapsible platforms and fall off because of macho mice. All is not lost – just collect the red and yellow noses and you can alter the odds by shooting all who oppose you in this wonderland of chaos.

Watch this space or you can get more information from Software 42, 109 Ferry Road, Hullbridge, Hockley, Essex SS5 6EL.

Added ram for A3010/400

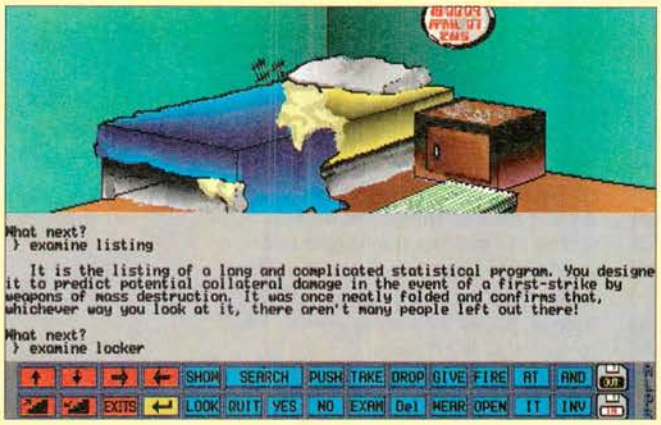
RISC Developments (0727 40303) are now shipping their 4Mb upgrades for the A3010. The new card measures 70 x 55mm and uses eight 4Mb low power ram devices to meet the signal, power supply and thermal constraints of the A3010.

The card fits into the two sockets provides for the 1 to 2Mb upgrade and because of its size it can be easily fitted through the metal screening cutout reducing fitting time. No soldering, specialist tools or knowledge are needed. The price is £129.

A400 series owners have not been forgotten and they can now have a staggering 8Mb upgrade added to their machine from £479 if they have an A440, A440/1 or R140 – the UNIX machine.

The product can also be fitted easily by the user with the upgrade consisting of two compact multi-layered circuit boards. The smaller board fits into the MEMC socket while the larger plugs into the operating system rom sockets – a cable links them and the OS roms plug into the new board.

A440 and R140 owners will also receive a MEMC1A upgrade and the ability to fit the Risc OS 3.1 roms without a carrier which saves over £60. Risc OS 2 users will receive a support disk including the modules needed to function with the new ram – Risc OS 3.1 users need no new modules.


What next?
> examine listing
It is the listing of a long and complicated statistical program. You designe it to predict potential collateral damage in the event of a first-strike by weapons of mass destruction. It was once neatly folded and confirms that, whichever way you look at it, there aren't many people left out there!
What next?
> examine locker
SHOW SEARCH PUSH TAKE DROP GIVE FIRE AT AND
EXITS LOOK QUIT YES NO EXAM Del WEAR OPEN IT INV

Practise survival

A 240k playable demonstration version of the ALPS text adventure The Survivor is available directly from Lynsoft (0287 624843) for £1.95.

A comprehensive help file is provided with the game too, so if you have wondered about text adventures but never played one, this could be the opportunity you have been waiting for.

● *The price of quality colour is coming down*

Economical colour from Seikosha

SEIKOSHA (0753 685873) have announced the first colour 24-pin printer under £250 – following on from last month's release of the first black and white 24-pin printer under £200.

The SL-95 is priced at £249 and is aimed at small to medium businesses and education. Seikosha's general sales manager, Gareth Cornish commented: "As we continue to expand our existing printer range, Seikosha aim to capture a large share of the buoyant entry level colour market".

The SL-95 emulated the Epson LQ860 and 850 and in its super draft mode prints as 240cps and comes with a 43k buffer as standard.

Artful CD

ENHANCING their range of clip art, Matt Black (0733 315439) now have a complete Image Club clip art library on CD-Rom. Called ArtRoom it costs £295 and is a collection of over 4,000 images, over 100Mb.

The floppy disk versions of these images would cost £745. The images are stored on the CD in Encapsulated PostScript format – EPS – and can be loaded directly into ArtWorks.

For those without a CD-Rom drive Vanguard ClipArt – also available from Matt Black – will give you access to unique and useful images created by Chris Kecun who's pictures were exclusively previewed in last month's *Acorn Computing*.

The Vanguard Library has been designed as a resource for DTP users and Volume 1 covers fantasy, tools and stationery. There are more than 50 images and the documentation is full of design ideas and hints and tips on layouts and using Impression, ArtWorks and Draw to the best effect. The Vanguard Clip Art Library Volume 1 costs £14.99.

Colour driving

THE Hewlett-Packard DeskJet 550C is proving a very popular colour printer for 32-bit users and in line with popular demand Ace Computing (0223 462212) have produced the first specific driver for it running under Risc OS 3.1.

The new driver uses the black ink available in the HP DeskJet giving far superior results and will produce full colour output in one pass. The 550C normally generated blacks and greys by mixing cyan, magenta and yellow.

Owners of the earlier 500C, which has separate colour and black ink cartridges, will also benefit from the saving in colour ink and quality although it will require two passes to produce the finished work. In addition the built-in spooler gives background printing. PRODriver 550C costs £47.

Not to be outdone Risc Developments (0727 40303) have also upgraded their HP 550C driver. The latest version provides four colour printing and also improves the quality of blacks and greys using the black ink cartridge in the 550C for a price of £15.

Authorised Education Dealers

47 Winchester Road, Four Marks, Alton, GU34 5HG, Hampshire

All prices exclude VAT

0420 561111 Alsystems

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IBM Canon SJ RESEARCH

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NEW ACORN COMPUTERS NOW BEING DEMONSTRATED !

RISCOS 3 now available £49 inc VAT

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SCSI Interface	£139.00
SCSI High Performance	£185.00
85Mb SCSI Hard Drive	£229.00
120Mb SCSI Hard Drive	£299.00
200Mb SCSI Hard Drive	£525.00

A5000 IDE Hard Disc Upgrades

40Mb IDE Hard Drive	£159.00
85Mb IDE Hard Drive	£199.00
120Mb IDE Hard Drive	£249.00
200Mb IDE Hard Drive	£425.00

Miscellaneous Drives

44Mb External Cartridge Drive	£375.00
88Mb External Cartridge Drive	£599.00
Cumana External CDROM Drive	£399.00
A3000 60Mb HardCard - Internal	£349.00
A3000 80Mb HardCard - Internal	£435.00

See us at BETT '93 Stand 376

Acorn Premier Dealer - UNIX - Network Specialists - Repairs and Maintenance

Come and see us!

Our Wells shop is opening mid-January, in Union street (next to Dixons) - not far from Bath or Bristol.

We'll be selling all that nice Acorn hardware, PCs (eeeek!) and software, peripherals, consumables and, of course, our own products too.

Drop in for a browse around the Acorn range!

THE SERIAL PORT

Fax Modem bundle Fax modem, ARCterm and ARCfax. All you need (even a cable) for fax & comms.	£289
20Mb Floptical disk systems DOS 1.44Mb and Acorn 1.6Mb capable. Works with practically all SCSI cards.	from £349
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ISDN	**(0749) 670883**

The New Generation!

RISC user

RISC User, the highly popular magazine for Archimedes users, is bigger and better. The new RISC User is now B5 size which offers a sophisticated design, bigger colour illustrations and bigger pages with more information. Altogether better value and no increase in price.

RISC User is still a convenient size to assemble into an easy-to-use reference library, containing all the information you need as an Archimedes user. Every issue of RISC User offers a wealth of articles and programs with professionally written reviews, lively news, help and advice for beginners and experienced users, and items of home entertainment. Altogether RISC User has established a reputation for accurate, objective and informed articles of real practical use to all users of Acorn's range of RISC computers.

RISC User Disc The RISC User magazine disc is widely acclaimed as the best magazine disc available for Acorn computers. Each disc is packed with original software of the highest quality, fully tested and supported by our own staff plus all the programs from the magazine.

Discounts RISC Developments is also well known for its range of professional software and hardware. As a RISC User subscriber you will receive at least 15% off any RISC Developments' software and 5% off RISC Developments' hardware, and this list of products is constantly growing.

A year's subscription to RISC User is £19.90 for the first year and only £18.40 for a renewal. (Overseas: £29 Europe, £38 Americas and Africa, £41 Elsewhere).

THE BEST PROGRAM AND TEXT EDITOR FOR THE ARC HAS JUST GOT A LOT BETTER

NEW

DeskEdit2

A major new release of the popular and powerful editor DeskEdit brings a whole toolkit of features that will assist all programmers, whether novice or experienced, and whether using Basic or C - and all within Acorn's powerful multi-tasking RISC OS Desktop. There is a lot for text users too.

New features include:

- **Basic program Renumber** - including partial renumber and marked sections.
- **Basic Program Indenter** - indents Basic programs after IF THEN, REPEAT, FOR etc.
- **Basic Abbreviations** - all Basic V's several hundred abbreviations are implemented).
- **Programmer's Calculator** - a powerful calculator especially designed for handling bits and bytes.
- **Multi-purpose Browsers** - an easy to use browser window containing a list of finds. Clicking on any one of these will take you to the corresponding place in your file.
- **Throwback** is fully implemented so DeskEdit can respond to messages from C compilers etc.
- **!FIND** - DeskEdit comes with a powerful stand-alone Acorn application called *Find*, which can find text strings in a whole group of files, just given a wildcarded filename.
- **Extended Saves** - DeskEdit 2 can save a special data file with the position of the caret, wordwrap correctly set and markers

All this of course is in addition to the features that have made DeskEdit so popular among users of Acorn machines, and which resulted in glowing reviews when it was first launched a year ago. IN FACT DESKEDIT IS SO GOOD THAT IT IS USED WITHIN ACORN ITSELF!

DeskEdit 2 (disc, new manual, keystrl and quick reference card) PDE2b £31.95 Inc + £2 p&p
DeskEdit 2 Upgrade Code PDEXa £9.95 Inc + £2

NEW

Wimp Programming for All on Acorn RISC Computers

book by Lee Calcraft and Alan Wrigley

This new book provides programmers with a complete introduction to all the techniques involved in writing multi-tasking Wimp programs to run within the RISC OS Desktop environment. No prior knowledge of the Wimp is assumed and the tutorial style of the book will enable all programmers to understand the concepts involved and to develop their skills in writing high quality programs within the Desktop environment.

The book consists of ten main chapters and a number of appendices:

- Chapter 1: Introducing the Wimp
- Chapter 2: Windows
- Chapter 3: The Wimp Poll Loop
- Chapter 4: Error Handling
- Chapter 5: Icons
- Chapter 6: Menus
- Chapter 7: Redrawing Windows
- Chapter 8: The Wimp Message System, Loading and Saving Data
- Chapter 9: Templates
- Chapter 10: Printer Drivers and Outline Fonts

- Appendix A: Indirection Operators
- Appendix B: Application Resources
- Appendix C: Setting up a sprite area
- Appendix D: The Wimp Programmer's Toolkit
- Appendix E: SWI calls described in this book

We believe that Wimp Programming for All will prove to be the definitive book on this subject for all users of Acorn RISC computers.

To support the book there will is a **disc** containing all the programs as listed within the book, together with additional supporting applications.

Wimp Programming for All book	**Code BK12**	**£12.95 inc + £2 p&p**
Wimp Programming for All disc	Code BK13	£4.95 inc + £1 p&p

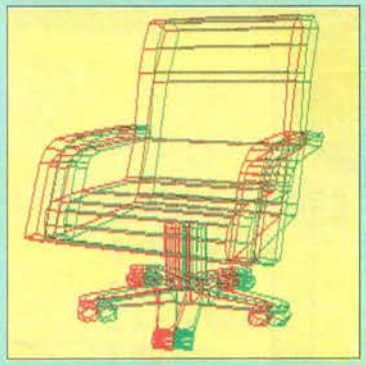
RISC Developments Ltd. 117 Hatfield Road, St Albans, Herts AL1 4JS. Tel. 0727 40303 Fax 0727 860263

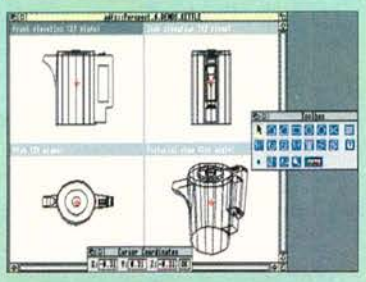
The third perspective

TECHSOFT (082 43318) have released a new 3-D design package called Perspectives which allows wire frame drawings to be created in any of three orthographic windows – the final result being displayed in a fourth window.

Perspectives can instantly change from first to third angles with the pictorial view able to be altered from isometric to oblique or perspective.

The perspective view can be rotated and zoomed giving you complete viewing control. But what makes this piece of software different is that once an object has been created you can select a special stereo mode which turns your design into a two-tone stereo 3-D image – pop on your 3-D glasses for the true effect. Perspective costs £45.





● *Using Perspectives you can create 3-D objects and then view them with red/green glasses*

Forthcoming Acorn Open Days

Acorn are resuming their regional Open Days in 1993 with the first one in Waltham Abbey. All the Acorn 32-bit machines are on display as well as software and hardware from a variety of other companies. You can also meet the editorial staff of *Acorn Computing* at the events marked ●. For further information contact Acorn on 0223 254254.

● Saturday 16 January	The Acorn Open Day in the South East	Swallow Hotel, Waltham Abbey, Essex.
Sunday 17 January	The Acorn Open Day in the South West	Redwood Lodge and Country Club, Beggar Bush Lane, Sailand, Bristol.
● Saturday 30 January	The Acorn Open Day in the North West	Mollington Banastre Hotel, Chester.
Sunday 31 January	The Acorn Open Day in the Midlands	Novotel, Wolverhampton.

Font offer for Risc OS 3

IF you are stuck for which font to use take a look at the 500 plus available for Risc OS 3 machines from EFF (0344 28698) which were designed in association with Acorn.

The new format includes automatic kerning data which allows the computer to adjust the spaces between letters. EFF Risc OS 3 fonts are available individually and in packs from around £2.20 each. For example EFF Times fonts are available in four weights for only £21 or individually from as little as £1.40 each.

For those with Risc OS 2 machines EFF have reduced the price of all their Risc OS 2 fonts by 30 per cent. All fonts will work on Risc OS 3 machines but without the automatic kerning facilities.

A clearer view

DEC_dATA (0392 221702) have reduced the price of ClearView Advanced from £50 to £25.50. ClearView Advanced compiles hypertext files from a textfile and gives you the ability to cross reference and index information as well as display sprite and drawfiles plus Ace film files.

DEC_dATA have also been working on Boxi that boxes words within documents. There are four styles to choose and the price is £8.47.

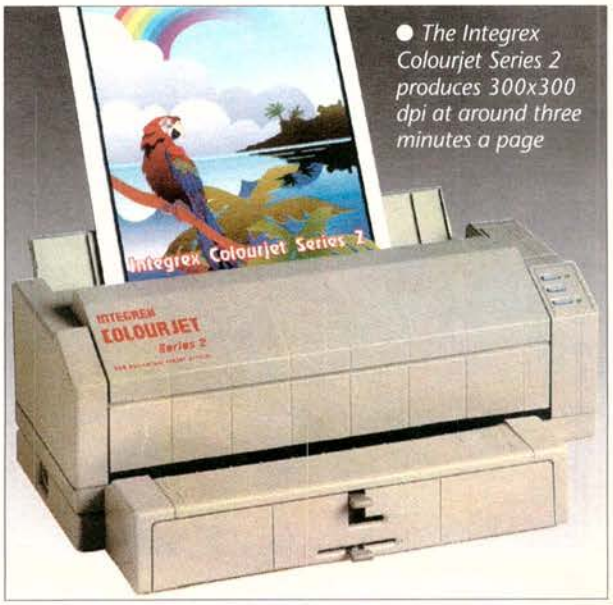
Secondly comes Parish Magazine, a collection of clip art and text created for those producing parish magazines. The collection consists of three clip art disks and a fourth disk with the full text of the King James version of the New Testament. Parish Magazine costs £16.98.

Bubble colour

INTEGREX (0283 550880) have a new addition to their family of colour printers, the Colourjet Series 2 with a recommended retail price of £417.

This is a compact inkjet printer producing 300 x 300 dpi colour graphics at around three minutes per page. The machines can also use a monochrome head for quiet, fast and high quality mono printing.

The unique head system is easy to use and maintain and an automatic sheetfeeder is available as an extra which holds 70 A4 sheets, The Colourjet Series 2 is compatible with the HP DeskJet 500C and is shipped with Risc OS 3.1 drivers though existing HP 500C drivers can also be used with it.



● *The Integrex Colourjet Series 2 produces 300x300 dpi at around three minutes a page*

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Power to your keys

Macros: Text editing made easy

Do you use your Archimedes regularly for wordprocessing? Do you find yourself typing the same thing over and over again? If the answer to both of these questions is yes, Macros could be just the program you are looking for.

It allows 10 strings of up to 254 characters long to be stored. These can then be inserted into any text editor with a simple click of the mouse. The macros may be edited at any time, which makes the program both highly versatile and a pleasure to use.

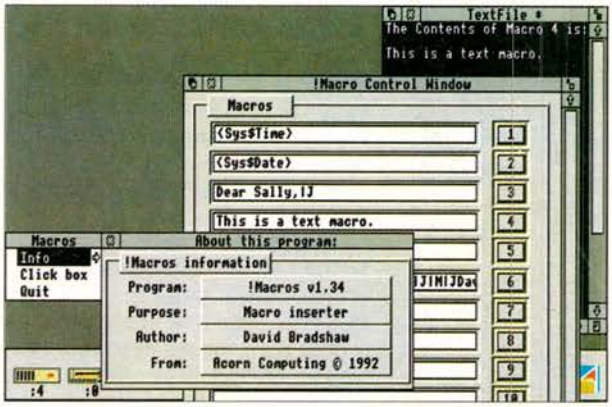
Load Macros in the normal Risc OS manner by double-clicking on its icon in the filer window. The program should load, and its icon will appear on the right hand side of the icon bar. Clicking Menu gives a menu with three entries, the first and last are standard, Info leads to a standard information box, while Quit exits completely.

The second entry on the menu could be one of two options, Click Box or Edit Window. If your menu shows the latter, click on the entry. If not, leave the menu, and click Select on the icon. A large window should now have appeared, containing 10 writable icons and 10 numbered icons. You can edit a macro by clicking Select over a writable icon and typing in a string, pressing Return when finished.

There are two ways in which a macro may be inserted into a piece of text. Firstly, the caret must be positioned in a window which has the input focus – the title bar will be yellow rather than grey then, in the edit window, click on the corresponding numbered icon. If a macro insert is possible, the text will appear at the caret.

The other way of inserting a macro is from the Click box. Bring up a menu either from the edit window or the icon bar and click on the second entry, Click Box. A long narrow window with 10 numbered icons and one long text icon will appear. Bringing the pointer over one of the numbered icons will result in the corresponding macro appearing in the long icon. Click Select to insert the macro with the caret in place as before.

The macros themselves need not just be text. Two extra features are included to make macros even more useful. System variables, such as



<Sys$Time> will be correctly inserted provided they are surrounded by the usual less than (<) and greater than (>) signs. Also, control codes may be inserted such as Control+J or Control+M to cause a Return. These must be entered as |J and |M.

Finally, there is no need to save the edited macros. This is because the program automatically stores them when it quits. Therefore, clicking on Quit will result in the macros being saved as well as the program quitting.

David Bradshaw

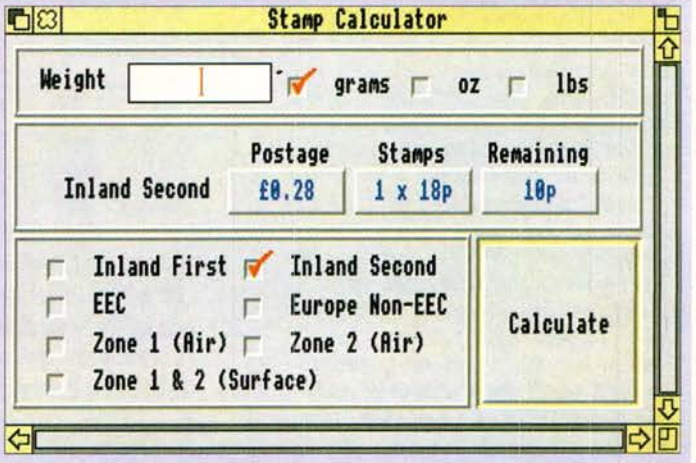
PostCalc: Give stamps a good licking

This program is written for those individuals who have kitchen scales and need to send packages which require more than one stamp yet will fit through the hole in the pillar box. It was really written to make my mail order business a little more efficient. I use a digital kitchen scale and this program to determine my postage.

As a matter of course I find I normally mail second class, within England using grams, but by using a template editor such as !FormEd you could alter it to be first class by default. Just tick *first* in the *main* window and save it back. You could also alter the standard weight. !PostCalc will read the data as the program runs.

There is two potentially confusing bits and these are the *Stamps* and *Remaining* sections. This means that if you have an item which costs 37p to mail you must apply 2 x 18p worth of stamps and 1p to make the required 37p. While this may be obvious to some, I had a number of complaints during the beta test stage. A list of countries and their ratings are given in the help file for !PostCalc.

Mike Smith



32-bit reviews index...all the best

THE *Acorn Computing* subscription disk contains an up-to-date list of all the products for the Acorn 32-bit micros that have been reviewed in *The Micro User* and *Acorn Computing*.

The reviews index is a text file and you can approach it in various ways. Using the Search facilities available in Edit you can look for a specific product, a company or a date. But more importantly the index has been split into subject headings so you can choose, say, business and see what products are available.

Stephen Wade

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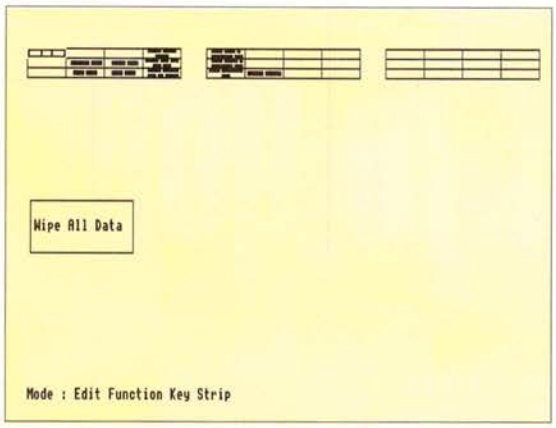
FuncPrint: Function key strips are in

EVER since owning my A3000, I have been continuously jotting down function key strips on bits of paper – one for !Edit, one for the Basic Editor and numerous others.



FuncPrint is a simple utility to use you can just double-click it from its Filer window – its not multitasking but for such a simple utility that's not really a problem.

Once loaded, you will be presented with a blank representation of an Archimedes function key strip – three blocks of four keys, with three rows for the function key, Shift+ function key and Control+ function key. It's best to use the lower line for the function key itself, and the top line for Control+ function key.

Also, you will see an empty box to the near the bottom left of the screen – this is called the Function Key Box. Displayed inside this area will be the contents of the current box for editing. Below that is your current editing mode, for example:

```
Mode : Edit Function Key Strip
```

On an empty strip, you'll see a white rectangle at the top left of the screen. This indicates where you are currently editing. It can be moved by pressing the cursor keys – sorry, no mouse control on this one.

To edit a block, simply press Return. This will then produce a white bar next to the box on the left of the screen and will change the message at the bottom of the screen:

```
Mode : Edit Function Key Box
```

Also, a small arrow will appear next to the box. Each box can have three lines of text (note that these three lines are not the three rows on the strip) and the arrow can be moved up and down – also by the cursor keys – to select which line will be edited. To edit a particular line press Return. This will change the message again:

```
Mode : Edit Function Key Line
```

Now you can enter text into the white bar. Pressing Return will set that line to the text you have just entered. Note however, that only 14 characters should be entered, more will be accepted but will produce unreliable results.

Pressing Escape anywhere will abort what you are editing and return you to the previous level.

Pressing Escape at the top level – Edit Function Key Strip mode – will exit the program. A check is made before exiting if the data is modified but not saved.

These are not the only features, however. The function keys – a strip is provided on the disk – give access to many more options

Control+F1: Wipes all data in memory – a check is made first, though.

F2: Loads a new function key strip from disk. A check is made first, as it overwrites the current strip in memory. When choosing this option, the message at the bottom of the screen changes to:

```
Mode : Load File
```

F3: This saves the current strip to disk. The message at the bottom of the screen changes to:

```
Mode : Save File
```

and you are asked to enter the filename.

Further information on the keys available is on the disk. The program will only work with Epson RX/FX compatibles – for example, a Citizen 120D. Lines 60-70 include the codes for: Unidirectional print, Elite type, compressed print, double strike, line spacing to 5/72 (15/216) of an inch, superscript.

By changing these to suit your printer, non-Epson compatibles can be used.

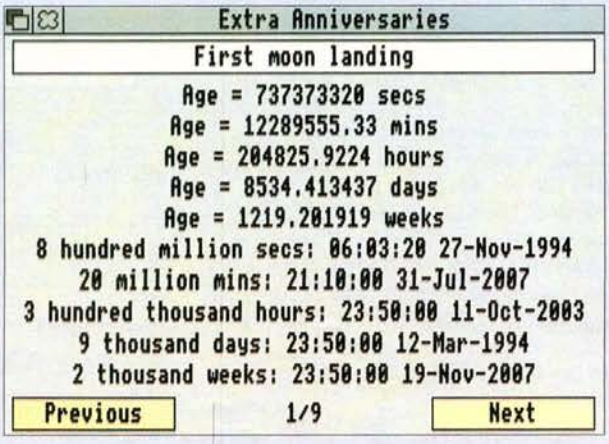
Paul Mason

Celebrate: Add another candle to the cake

THIS program is really only an excuse for a few extra parties and a lot of *my you are old*-type insults. Double-click on the !Celebrate icon, then click on *Next* and *Previous* until the icon shows the name of the person wanting an excuse for a party.

If things are looking bad, and the next party isn't going to be for a fortnight or so, you can always invent something like *Party to celebrate 100 billion seconds since the death of Attila the Hun.* No one is going to be stupid enough to start wading through the encyclopaedias, leap years and changed calendars since 453AD to check, leaving you a good excuse for another party.

And before you try and use this program to work out whether or not 100 billion seconds is a good guess: You can't. It won't work with dates before 1 January 1900. And Pre-Julian calendar dates really aren't nice. The file *People* inside the application contains the default list of people: The string before the comma is the title and the one after the comma is assumed to be the time. Anniversaries like *the death of* should have such in their title to distinguish them from births.



The time should be in a format which can be read by Basic's TIME$=... command:

```
dt mth year.hr:mn:sc
```

If you make a mistake, the present time will be assumed.

The *next celebration* info is only recalculated when the program is first run, since it takes quite a while, so if the celebration passes as you watch, rerun the program to find when the next is.

Jo Walker

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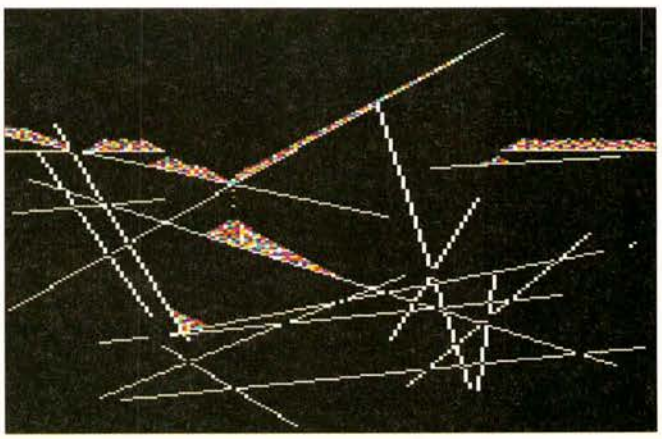
An just time in time for February 14 is Valentine – a program which will give a message to your favourite person.

Stimulating simulation

Sand Particles: Trickle treat

I WAS jealous when – owning a BBC Micro – I read up about this pretty little routine for the almighty Archimedes which would simulate the movement of sand particles – 25,000 at a frame rate of 27 centiseconds?

I immediately set to work in order to create a rival program for the BBC Micro. Some rival ... 1,024 is the maximum number of particles the program can handle with half a second per frame. But speed isn't everything.



The simulation is run by two programs, one which sets up the machine code and various user-alterable parameters, and the second which sets up the memory, six bytes per particle. Within the calculation of the particles, the program takes into account such factors as acceleration due to gravity, air resistance and terminal velocity. After selecting the number of particles to be simulated, you are asked whether you want the spread facility (160 particles equal the width of the screen), and if so whether you want the disintegration effect – try it, it's quite impressive.

Then you decide on the colour of the first particle and how many colours after that in consecutive order until you reach the first again. The highest colour value is 7 – white – and flashing colours are not permitted.

You are now asked whether you want random lines, drawn with GCOL3,x to produce holes, or to load a pre-drawn Mode 2 screen from the disk. Finally, if you haven't selected disintegration, you can choose whether you want cyclic mode or not.

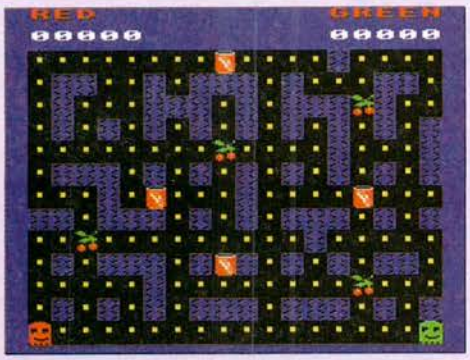
If selected the particles will disappear if they reach the bottom and reappear at the top – this option is standard with disintegration.

When not selected, a base line will be drawn to prevent this from happening.

The second will now be loaded and run. You will have to wait while Basic sets up the initial positions and colours of the particles. Then sit back and enjoy the display.

Mark R. Bannister

Klect: A game for all seasons



The Klect game is like Pac-man, but its for two players and there are no ghosts. But each player can drop dynamite to blow up the opposition so it's a battle of speed, dexterity and wits to see who can clear the board with the most points.

The controls are quite simple:

	Player 1	Player 2
Left	Z	<
Right	X	>
Up	F	*
Down	C	?
Lay dynamite	Space	Return

Have lots of fun.

Mike Goldberg

SUBSCRIPTION SPECIAL
Four great programs on your disk this month

Generator: Graphics on a budget

BORED with the average graphics program? Then try this one, it includes a lighten or darken effect, lines, circles, pyramids with a star background. The plotting crosshairs are moved around with the Z, X, : and / keys and a menu system takes you to the various facilities.

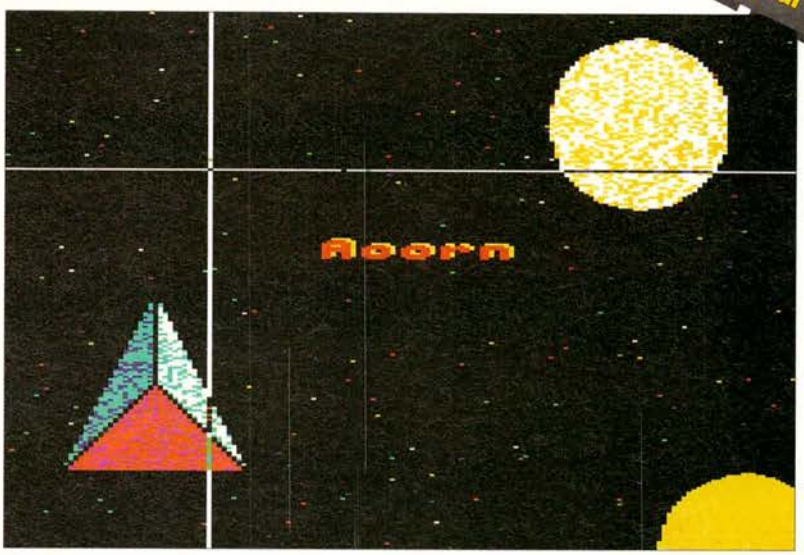
You get to the top layer of the menu by pressing Return, then each option can be selected by pressing its first letter. Some options require a number which will be zero to some single digit number, usually seven or nine. The text option lets you put in a string.

The menu itself appears on the bottom line of the display but unfortunately, as there's only a character width of 20, a maximum of three menu options can appear at a time. So the menus can go pretty deep.

The three top level options are File, Draw and Quit: The first lets you load or save screens or clear the current one, the last exits the program. Draw takes you into the actual drawing options.

Here there's another three choices: Draw, Effect and Text. In Draw you can create a circle, two types of pyramid-style shapes and enter the line mode where moving the crosshairs drags a line of the current colour. The three shapes you can make are of fixed colours.

Under Effect you get Fill, Colour which lets you select one of the seven colours and Stars which puts 30 randomly coloured pixels on the screen. Fill is a very powerful option with its own sub-menu.



You can choose to lighten or darken all the colours within a boxed area, the main parameter – *density* – is set from the Opt sub-menu. Density can be any value from zero to nine, initially it's five. When the program is changing an area it randomly modifies a pixel depending on the density, a high density increases the chance that a change will be made, a low density reduces the chance.

A maximum density, nine, plots the current colour regardless of the pixel colour, a setting of eight will lighten or darken all pixels. Black is never lightened and white is not darkened. The table shows how the colours are adjusted. Very interesting effects can be achieved by repeatedly lightening and darkening areas and objects on the screen.

Colour	Lighten	Darken
Black	Black	Black
Red	Magenta	Red
Green	Yellow	Blue
Yellow	White	Green
Blue	Cyan	Black
Magenta	Red	Magenta
Cyan	White	Blue
White	White	White

Also within the Opt sub-menu is a chance to redefine which colours are which, for example colour 1 is usually red but it can be redefined as blue.

Lewis Westbury

FAULTY DISK?

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Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB.

Valentine: Say it with pixels

As Saint Valentine's day approaches we will, no doubt, be urged on every side to *Say it with flowers* again. Now you can say it with computers instead – or as well.

Just leave the Feb14th program running where your beloved can see it. It waits for a press of the spacebar, then the screen will blank and after a short pause – about 10 seconds on a BBC Micro – your message will be displayed in glorious living technicolour.

The program is fairly simple. The function used to draw the heart was discovered more or less by accident but, I think you will agree, gives a very effective shape. Since it is symmetrical about a vertical axis, the amount of calculation needed can be halved by storing the coordinates and plotting in both sides together. The dynamic effect is achieved by making the boundary colour one which alternates between the background and foreground colours. For a purple heart on green, assign colour 0 to 2, colour 1 to 5, and colour 2 to 10.

Electron users should remove the initial REMs from lines 150 and 170. The first poke fools the ULA in thinking that the computer is in Mode 6. This virtually doubles the speed of the program. The display goes crazy, but since at this point all the colours are black, no-one is any the wiser. The second poke sets things back to normal.

So now on this February 14 you can convince your sweetheart that your computer is worth every penny it cost.

Phil Bender

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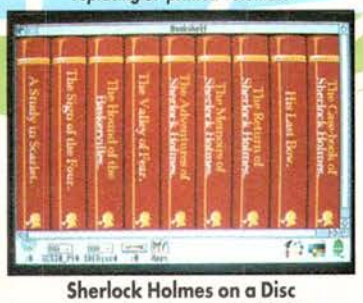

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Jo Giles and Clem Vogler take a look at a range of packages designed to increase your multi-lingual capabilities

Speaking in tongues

THE best time to learn a new language is when you are young – which has always been a good excuse for anyone over 20 not even attempting the simplest of sentences in any language than their native one.

But with European-ness being thrust upon us you may want to try speaking in another tongue. If you want to enhance the training you're receiving, brush up your school French or help a child to learn, a vast range software is ready to come to your aid.

Linkword

Price: £39.95
Supplier: Minerva, Minerva House, Baring Crescent, Exeter EX1 1TL.
Tel: 0392 437756
Available in: French, German, Spanish

Linkword falls into the *enhancing* category – I must admit to being dubious when I first started to read about it. The author, Michael Gruneberg has written in detail on the application of memory research and Linkword is a combination of linguistic and memory skills to teach basic vocabulary and grammar. Yet despite my cynicism it works.

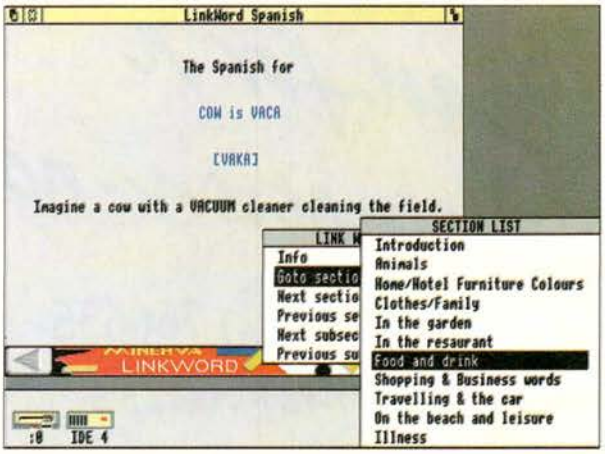
In a nutshell Linkword uses the method of association, and Dr Gruneberg has associated a large number of words with images in such a way that they can be learnt and integrated with grammar and sentences. The course lasts between 10 and 12 hours and will give you enough knowledge of a language to act as a survival course.

The words targeted are ones concerning food, emergencies, numbers and those needed for travelling and so on plus basic grammar. As Spanish was a language I was unfamiliar with I chose this one to test Linkword.

You start with a set of simple animal words for dog, cat, duck, bull and so on. To remember the word for cat think of a cat eating a gateau, the Spanish word being *gato*.

You hold this image in your mind for 10 seconds – click the clock icon at the bottom of the window or press the space bar and the next picture will appear in 10 seconds. You can go forward and backwards through the exercises and after each section you are instructed to load up an audio tape.

Pronunciations and spellings are given at all times as well as translations from Spanish to English and vice versa. I was surprised with the speed with which I progressed and just how enjoyable it was. The grammar was stated simply and everything is well supported by exercises. Definitely recommended.



● *Linkword is an unusual but effective way of learning a new language*

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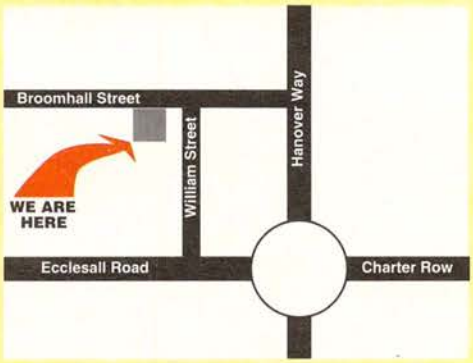

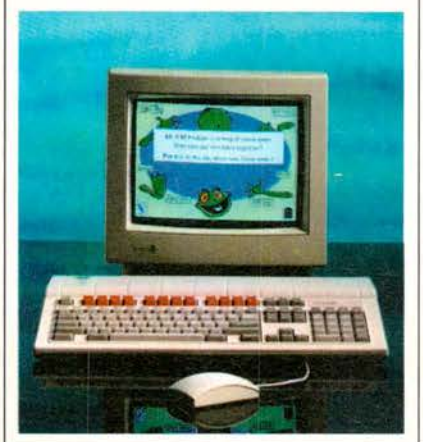

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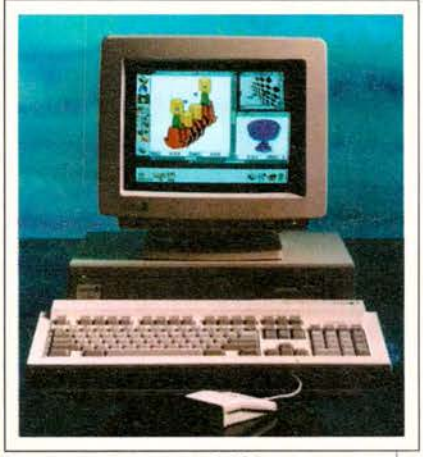

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● *The graphics of Six German Games leave something to be desired*

SPORT - LE BASKET 1/1
Orthez est un centre très important pour les joueurs de basket.
La première équipe (L'Elan Béarnais) a eu beaucoup de succès sous la direction de son coach George Fisher. Elle est à la tête de la première division de basket et en plus, les joueurs de basket d'Orthez ont déjà gagné le Championnat de France.
Les juniors sont aussi très forts en basket - des champions présents et futurs - voir 'Sport Etude'.
En tout il y a huit équipes de basket: adultes et jeunes - garçons et filles. La première équipe s'entraîne tous les jours - trois heures par jour dans la Salle Moutète.
C = continue; B = back;
BREAK (topic menu); ESCAPE (main menu)

● *Orthez – cité de charme: All you wanted to know about this part of France*

Six Games

Price: £38.50
Supplier: AVP, School Hill Centre, Chepstow, Gwent NP6 5PH.
Tel: 0291 625439
Available in: French, German, Italian, Spanish

These games are somewhat dated and the programs by no means use the power of the Risc OS system. The program is not multitasking and only uses the keyboard – the function keys are used for the accented letters – and in the German program it shows its age by referring to the GDR and DDR.

You will need a basic grounding in the language and these programs would probably be most at home in a revision setting for those who have at least completed one year in the language. The topics, too, are really aimed at schools use covering areas such as Around the Town, Fruit, Eating Out, School Life and Free Time, and in Three in a Row – months, seasons, weather and geography.

The games use very simple graphics but they are not very well drawn and are sometimes very difficult to make out. In the advanced level of Eating Out you have to choose your menu from the graphics and it is very difficult to see what you might be eating.

The Around Town game is a little confusing too as you have to orient yourself to the on-screen arrow rather than to the map in general.

French Correspondence for the Archimedes

Price: £20
Supplier: The Advisory Unit for Microtechnology in Education, Wheathampstead Education Centre, Butterfield Road, Wheathampstead, Hertfordshire AL4 8PY.
Tel: 0582 830274
Available in: French

This is a simple program in concept but very nicely put together and a joy to use – I only wish it was available when I was first composing letters. Suitable for school or home use it takes you through the correct way of addressing topics and people so that your letters have the right feel to them rather than being pidgin fashion.

It was written to complement the TVEI Vocational French course developed by Hert fordshire teachers but it will find a home with anyone whose French is a little rusty.

Though it was first written in 1986 I would recommend it to anyone who plans to write the occasional letter to France.

You can choose from several topics: Applying for a job, arranging to receive visitors, booking accommodation, renting a flat, requesting directions, making business contacts and arranging town twinning.

As with the AVP programs the function keys are used to access the accented letters.

The names and addresses of the recipients are made up for you but you can learn from the multiple choice structures which are the best forms for an occasion and incorporate these into your own letters.

After you have chosen the French phrase to say exactly what the English prompt requires, the program puts it into the letter. After the correct salutation you can then print your masterpiece. A useful addition to any course.

Orthez – cité de charme

Price: £25
Supplier: L'Ensouleiado Software, Old Brackenlands, Wigton, Cumbria CA7 9LA.
Tel: 06973 42224
Available in: French

For those of you who want to practice reading skills or find some more out about France, this database is full of interesting facts and details which should be accessible to most with intermediate to advanced French skills.

Written originally for the BBC B the 130 teletext-style pages contain text on this part of the Pyrenees. Orthez is a real town and while a street plan is provided with the software, more detailed information can be obtained from the Office de Tourisme in Orthez.

All the instructions are in French and the program has general details on Orthez as well as information on the administration, clubs, economy, leisure facilities, accommodation, education, sport, religion, health and transport. Not so much an aid to language learning as a useful resource.

Dans le Métro

Price: £19.75
Supplier: Languages Development Centre, St Martin's Enterprises, St Martin's College, Bowerham Road, Lancaster LA2 3JD.
Tel: 0524 32423
Available in: French

Another simulation set in France, Dans le Métro is basically a game with good use of simple graphics and some excellent digitised sounds and cute rendition of Les Marseilles. The program puts you in a Métro station – by default the Gare du Nord – but you can specify the destination and start point or let the computer give you a random

Hotel Excelsior

Price: £16
Supplier: Mentor Software, 69 Beech Road, Halton, Lancaster LA2 6QH.
Available in: English, French, German and Spanish

This is a program with a difference as it simulates a computer display at a reception desk in one of a chain of a small hotels – the Excelsiors in Manchester, Lyon, Frankfurt or Malaga. All the languages come on the one program which makes it good value for money.

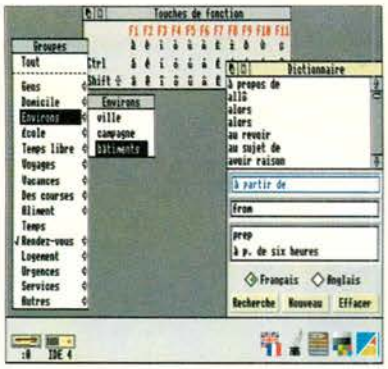
It's single-tasking, has been around for a while but is an excellent program which can be used to lead into role-playing or project work in a general class or revision lesson.

It is aimed more at school than home use but I think this does it a disservice.

The layout is simple and after you have chosen the location of your hotel you are presented with the hotel's computer menu screen.

This gives you access to the current prices, available rooms, reservations, guest records, accounts and cancellations.

The on-screen prompts are in the language of your chosen location and the guests can have their own personas. Potentially very entertaining.



● *An interactive dictionary such as Lexique is vital*

destination. You are then presented with 20f and a Métro self-service ticket machine.

Using the arrow keys you choose the amount you want to pay and then the program animates the coins as they go into the machine. Next you choose the type of ticket you want and are given a destination to get to.

The screen then shows a 3-D representation of corridors which you manoeuvre around following the signs to reach a platform and eventually your stop, exit and back to the street to be met with the sounds and atmosphere of Paris.

I remember getting hopelessly lost in Paris once, but I fared better with this program. Two versions of the Métro are provided one with three lines and 10 stations and the other comprising all the stations on lines 1, 4, 5 and 6. In total there are 115 stations complete with maps.

An unusual and excellent program for younger French students. Instructions are in French once you're inside the simulation but you can have them in English.

Lexique

Price: £15
Supplier: New Era Software, 204 High Street, Woodville, Swadlincote, Derbyshire DE11 7DT.
Tel: 0283 812818
Available in: French, German Spanish

New Era's French/English topic-based dictionary is called Lexique and is a useful tool regardless of your language proficiency.

A true Risc OS program it contains about 2,500 words as well as the facility to add your own words, information and phrases.

As with earlier programs you use the function keys to access the accented letters but a window containing these details will appear on screen so you don't have to refer to a function key strip or manual.

The program loads on to the icon bar and when it's opened you can scroll through the words, search, add to or edit the entries. When you select a word it appears followed by its English equivalent and information about it.

Everything is editable in Lexique making it very flexible indeed. Words can be grouped into topics and even sub-topics very easily and all or some can be printed at will. It works simply and integrates with other applications such as wordprocessors, DTP packages and the like. Essential.

Vision Software French 1: Time, Shopping and Travel

Price: £32.50 (£75 network version)
Supplier: Disney, 6 Pilkington Avenue, Sutton Coldfield, West Midlands B72 1LA.
Tel: 021-354 3981
Available: French, German

AS my French is a little rusty I worked through this program with interest and pleasure. The interface is friendly and totally Risc OS and as this is really a reinforcement rather than a teaching package I would feel happy with sandwiching a traditional language course between Linkword and this.

The programs in the French and German versions differ slightly and more subjects are available in Unit 2.

The French package concerns leisure and meeting people while the German version deals with accommodation and meeting people.

This fully multitasking program gives the questions in French and your responses must be via a range of multiple choice answers or typing in the correct response. Everything you need is provided in the main window.

If you are unsure of the question, clicking on the Clues button will give you the English translation in a window – this can be turned off if you want – while the Notes option gives you a window showing all the possible French responses to your reply and their meanings. Scores are updated on screen and you can access scores on the other exercises at any time.

The correct answers and their translations are displayed too though you are allowed more than one opportunity to get the right answer. The final score differentiates between questions you got right eventually and those you succeeded with the first time.

Some very nice features include if you spell either an English or French word wrong you get credited with the right answer but the phrase *Brave! Votre réponse et proche* appears telling you that is was not quite right. Also notes are given to augment the translations such as bar football tables are usually found in cafes.

The topics covered fit into four main sections: Les nombres les dates et les temps, les achats, les voyages and en ville.

These have between four and five sub-categories covering dealing with a train timetable to conversations with locals. All in all an excellent package.

Micro German

Price: £24 (inc VAT)
Supplier: LCL, Thames House, 73 Blandy Road, Henley on Thames, Oxon RG9 1QB.
Tel: 0491 579345

The course consists of a 24-lesson, question and answer exercises on disk together with a pronunciation audio cassette and a text book. The text book is actually one of the unimaginative Teach Yourself series with no connection with the exercises.

The disk exercises are described as serious and intense, with sophisticated error handling. I found them trivial and vague, with singly focused responses taking no account of correct alternative solutions. Your typing skills receive more exercise than your language ones – multiple choice would have been better.

Everything is presented in low resolution teletext type fonts and garish colours from a palette of four. Right or wrong answers are greeted

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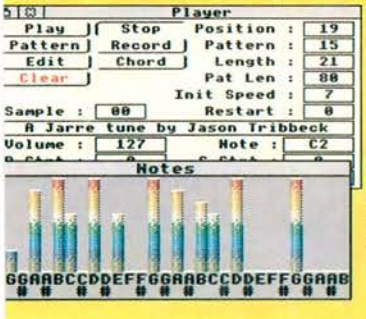

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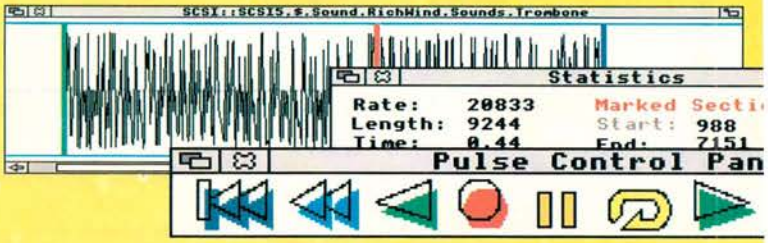

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See review starting on Page 33

The Hampshire Microtechnology Centre

Connaught Lane, Portsmouth, PO6 4SJ. Phone: 0705 378266 Fax: 0705 379443

We just didn't have room for it all! We couldn't even mention our superb curriculum support packs, our software guides, our third party software prices, our national Curriculum IT planning & tracking material or our complete subscription based support service for schools. We would be glad to send you a complete brochure and price list.

software

Jumbly — verse and text sequencing for languages

NUTRIENTS — Comprehensive diet analysis package

GRANVILLE — The French holiday simulation - this favourite now for the Arc

The RISC OS text manipulation package - 9 exercises, 6 languages as Archimedes World said "Magnifuique"

Linguatext

Snowflake — encourages younger children to explore maths patterns

Easel3 — still the best Introductory painiting package

Context — create concept Keyboard overlays

Punjabi and Bengali fonts

curriculum resources

complete Resource packs containing an interactive multimedia application with sound animations, masses of suberb Draw files, lots of information, !My World and database files, practical exercises, pupil activtiies, worksheet and NC links. Packs include **Bridges, Greeks and 'Move it'.** Terrific value- eg. Bridges is a seven disc set for £39.95 inc a site license

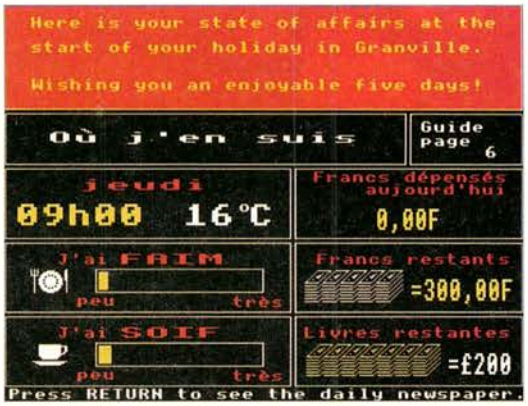
complete solutions

Hampshire Control Kit
interface, software, range of devices & cirruculum support material in a one pack

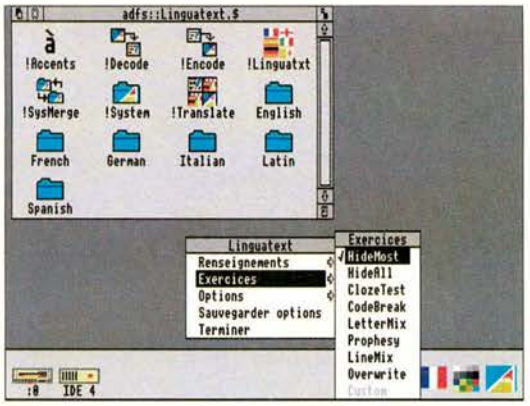
Primary Archimedes Toolbox plus
a complete set of software, guides & National Curriculum material

Hampshire Datacapture Kit
all the hardware, software, sensors & worksheet for data-logging

Centre



● *Granville – a way to spend money and see the sights without leaving your computer screen*



● *Linguatext allows you to create your own text – it provides the exercises*

by irritating audio jingles and the seconds counter is meant to record how long you took to answer, but gets it wrong.

Screen prompts appear and disappear before you can read them. Some instructions are wrong, others ludicrous, like the one inviting you to override the score if you think the answer you got wrong was right. All in all here the computer brings no benefit but rather distracts.

Granville

Price: £29.95
Supplier: Hampshire Microtechnology Centre, Connaught Lane, Paulsgrove, Portsmouth, Hants PO6 4SJ
Tel: 0705 378266
Available in: French

Originally available on the BBC 8-bit range, Granville is a single-tasking program and the whole style is consistent with its origins. However, it is a nice piece of exploration software and the manual – though BBC Micro-based – is very clear and easy to follow.

The scenario is that you have won a holiday in Granville with accommodation and money. The town is yours to explore, but watch out for your money and your eating and drinking needs.

There are indicators for these on the information screen but as long as you can keep body and soul together you can journey around the countryside and town taking part in clay pigeon shooting or shop to your heart's content.

There is a great deal in this package and though for younger students it also encourages map work and planning. All the instructions and information on the computer is in French but the manual explains everything in detailed English. An enjoyable package despite being somewhat dated.

Linguatext

Price: £55
Supplier: Hampshire Microtechnology Centre, Connaught Lane, Paulsgrove, Portsmouth PO6 4SJ
Tel: 0705 378266
Available in: French, English, German, Italian, Latin, Spanish

A true 32-bit package which would really be more at home in school than at home. It's multi-lingual – all the languages are available in the one package – you just press Select on the iconbar icon to cycle through them all.

The menu button gives you access to the options. These change in keeping with the language chosen, though the exercises sub-menu remains in English, containing HideMost, HideAll, ClozeTest, CodeBreak, LetterMix, Prophesy, LineMix, OverWrite and CustomClose. You can use the data supplied with the program or create your own using a standard Ascii file. A utility called !Accents helps you add accented characters, while an encryption program, !Translate, will stop students loading the created exercises back into Edit to solve them.

The exercises are quite simple in format and make a good back-up to a language course. Time delays, and magic characters are all definable too.

The exercises concentrate on replacing clozed words and letters with the correct ones. Students can access the original text but are penalised 50 points for doing so. There are also codes to break and jumbled words and lines to solve.

The Prophesy exercise looks very intimidating and can be quite challenging as at first all that is shown is the punctuation.

Trial and error and a knowledge of language structure is needed to succeed.

Pour continuer ... dix petits jeux français

Price: £29
Supplier: PIE, Number One, Clubley Estate, Mont-a-l'Abbe, St Helier, Jersey, Channel Islands.
Tel: 0534 74005
Available in: French

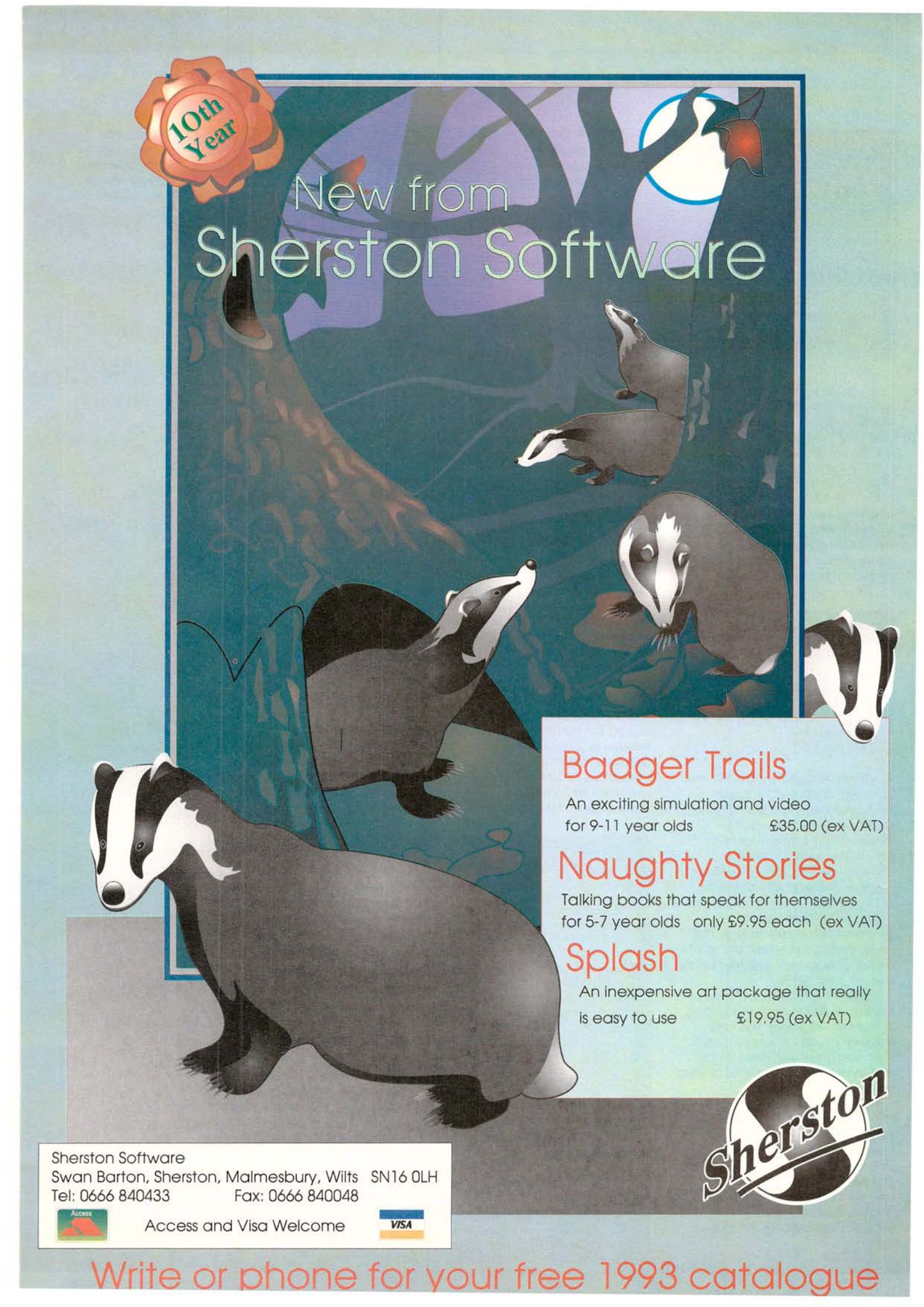
Of all the products assessed here this is the only one to use speech as an integral part of the software. The content is full of lovely graphics and a simple interface. On the 10 disks are two programs: One for a usual machine using a keyboard and mouse, and another for using a Concept Keyboard and specially designed overlays.

The latter is especially good for very young students or slow learners.

The sampled speech is clear and once you have loaded the programs all instructions are written, spoken or both. The subject matter is aimed at primary aged children and is easily set up and used by parent or teacher. A report facility called !ReadRep is built in to gauge a child's progress and can be printed or saved to another disk.

The programs are: Quel Numéro, Le Jongleur, Le Visage, Le Maison, Les jours Les Mois, Les Animaux, La Circulation, Colone ces Poissons, Devine L'Animal and Les Cages and cover a whole range of skills including counting and writing numbers, to colouring animals and naming parts of a house and face.

Vocabulary is built up slowly and reinforced as the programs progress as are simple sentence structures and grammar. The samples are used to extremely good effect with acknowledgements being using more than one voice and using different phrases. An excellent way to start learning French, or as an addition to any first course.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Network virus news

THE key to keeping any network system free from viruses is having an up-to-date killer. Pineapple Software maintain a subscription service to their !Killer application and now Digital Phenomena have launched !Guardian3 which is public domain.

Guardian was the first virus killer for the Archimedes but that was two years ago. It constantly monitors the system so that known viruses cannot be loaded into it.

The new version will work on any filing system including CD drives and networks. You can even set an AutoScan path so that the program will automatically scan and delete all known viruses from a specified directory as soon as it is loaded. This allows school networks for instance to include this in their startup routines.

Support is given free of charge – just enclose a SAE – as are updates and you can obtain 24 hour technical support and advice via a Viewdata service. For further details contact Digital Phenomena, 104 Manners Road, Southsea, Hants PO4 0BG.

Naughty but nice

TALKING books for the 32-bit machines are here – thanks to Sherston Software (0666 840433). A year's research has gone into this project which has produced the Playbook system that uses the more understandable and acceptable human speech rather than computer generated sounds.

You can move from page to page and ask the computer to repeat any words you are unsure about. The first talking books will be a series called Sherston Naughty Stories featuring Billy the Bothersome Bully, Doris the Dotty Dog and Edwina's Energetic Elephant.

As well as text and sound the Naughty Stories are short, beautifully illustrated and fun for infants and children with reading difficulties for £9.95 each or all six for £49.75.

Large screen viewing

SCHOOLS who want to buy LCD Video Projection systems can obtain the Epson projector for £1,495 from Cambridgeshire Software House (0480 67945).

As well as being easy to use and portable it is capable of projecting video, TV and computer images. You connect the projector to any BBC B, Master or A3000.

Holding its own

ACORN themselves are running The World of Acorn Exhibition in October and plans are well under way. On the education side a special section will be devoted to education matters. Watch this space for further details.

Portable logging

SCC Research in association with DCP Microdevelopments have developed a portable data logger called LogIT. As well as giving access to fully automatic data logging at the touch of a button it is compatible with BBC Micro, Master and 32-bit ranges of Acorn machines.

Data loggers are used across the curriculum in physics, biology, health, chemistry and earth sciences and LogIT comes with a wide range of accessories from robust Microsense sensors to the control of electric devices such as SwitchIT and AlarmIT.

● *Logging data anytime and anywhere*

A starter pack costs £185 with computer link packs starting at £29.90. The different sensors vary in price from £14.90 to £87.50 for a Wrist Coach Heart Receiver. All the LogIT products are available from Griffin and George (0509 233344).

Help for science

THE demand for GCSE revision and self-tuition courses has inspired LCL (0491 579345) to release their first totally new non-language course for over two years – Micro Science.

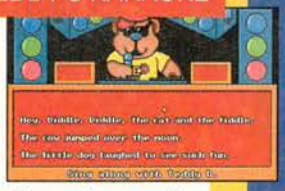
This is the first National Curriculum Integrated Science course on computers that takes students from 8 years of age up to GCSE level. It is due out in May and will cost £24.

Micro Science follows the National Curriculum in Science closely and can also be used for the separate subjects of Physics, Chemistry and Biology GCSE revision. It consists of practical experiments, graphic adventure games and Biology demonstrations such as watching the eating and digestion of food.

Help your child to a brighter future – with the best in educational software

fun school 4

TEDDY'S KARAOKE



Sing along with DJ Ted to popular nursery rhymes.

TEDDY'S BOOKS

Select the correct number of Teddy's bedtime book.

TYPING

Type the correct letters and words and save Freddy from the crocodile.

SHOP KEEEPER

Shop with Freddy and his friends choosing coins to pay the bill.

DESERT DATES

Study historical events to find the secrets of the pyramids.

EXCHANGE RATE

Change Sammy's money at the international exchange desk.

"Fun School 4 zooms to the top of the class. Three brand new packages combining the essentials of the National Curriculum with beautiful graphics, cleverly animated rewards and stimulating sound keep your children engrossed while they learn.

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Beware of Greeks...

John Clemence takes a flight to Athens to tackle the subject of ancient history

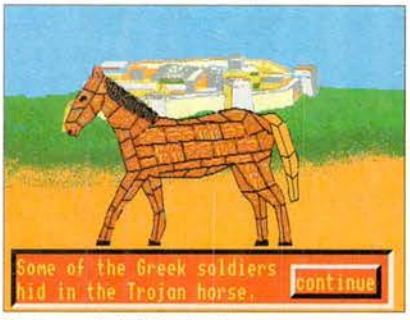
● *The time line*

PRODUCT SPOTLIGHT

Product: Ancient Greece
Price: £25
Supplier: Chalksoft, PO Box 49, Spalding, Lincs PE11 1NZ.
Tel: 0775 769518

ONE of the requirements of the document, History in the National Curriculum, is that children are to be taught about the Ancient Greeks. For those of us brought up in a climate of attempting to make the curriculum meaningful, to be delivered through first hand experience, study of the Ancient Greeks appeared, at first sight to be something of a challenge.

The setting for this program is Athens airport. However, the flights from the airport are rather unusual: You can only fly to destinations set in the locations and times of Ancient Greece, choosing the date and the theme from a list.



● *A completed Trojan horse*

You are then taken back through a timeline with illustrations of some of the major events in British and World history appearing in a small window at the top of the screen.

The speed of the journey can be specified so you can stop to look more carefully at the timeline. An interesting idea as it sets Ancient Greece in the context of time and other historical events. Also, it might be expected that after several excursions into the past and back again to the present children may gain an overview of world history.

Once you have arrived at your destination you have a choice of returning to the present, reading some facts presented on the screen with maps and pictures, taking part in an activity – designed to make each period of the history both fun and memorable – or asking for help about using the mouse and screen windows.

As a research tool the program is full of interesting information with key words highlighted to complement a glossary – also available from within the software. The information can be scrolled up and down the screen and the size altered to suit the needs of the individual child.

The activities for each period of the history are simple arcade type games although I found moving the gods to their respective temples required a little more effort from the grey cells than taking part in one of the three events available from the Olympics. My son was distinctly better at these than I was.

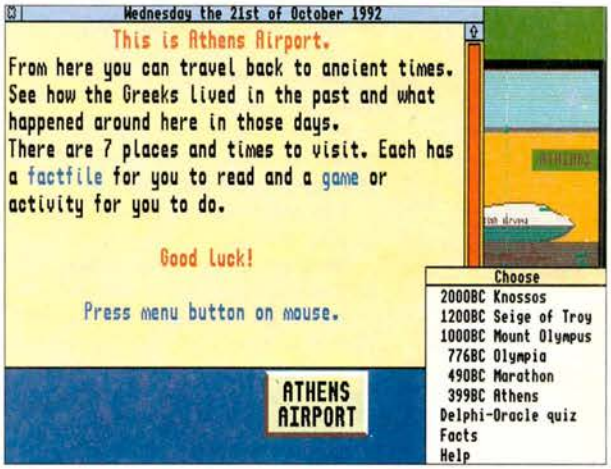
Strictly speaking the games did not always relate directly to the learning that the rest of the program supported yet they do give the children a kind of familiarity with the names of some of the main characters and events of the period and they were, for the most part, quite enjoyable to play.

There is just one catch: In order to be allowed to take part in any of the computer games children have to answer a simple question. In order to do this they may well have to read through the factual information. I thought this was a nice idea and does at least do something to ensure that the children are learning at least a minimal amount of history. The final choice for the children is a visit to Delphi – the Oracle Quiz. Having read all the fact files very carefully I managed to gain a certificate. I can well imagine that children will be quite delighted with this.

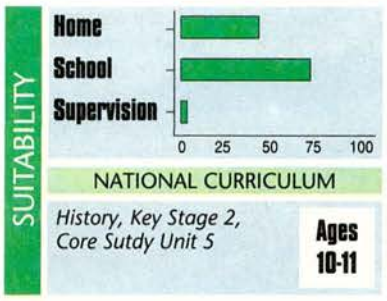
Summing up

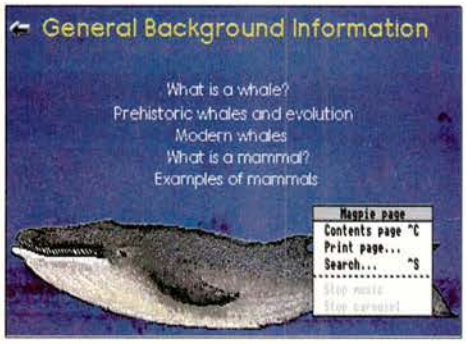
Although the quality of the games in educational and playability terms is varied, this is a fun way to approach this topic. I will certainly use this as one of a variety of activities with my year-six children.

It would also be useful for some purposes in the home if your children have been set homework on this theme but does not have the lasting quality and attraction of a well illustrated book.

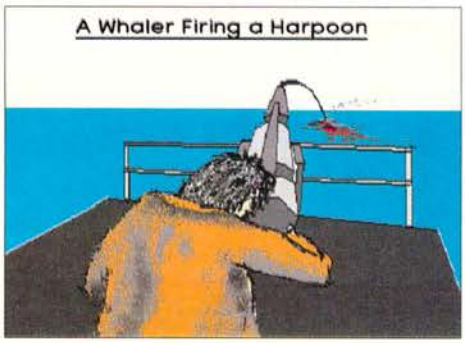

Wednesday the 21st of October 1992
This is Athens Airport.
From here you can travel back to ancient times.
See how the Greeks lived in the past and what happened around here in those days.
There are 7 places and times to visit. Each has a factfile for you to read and a game or activity for you to do.
Good Luck!
Press menu button on mouse.
ATHENS AIRPORT
Choose
2000BC Knossos
1200BC Seige of Troy
1000BC Mount Olympus
776BC Olympia
490BC Marathon
399BC Athens
Delphi-Oracle quiz
Facts
Help

● *Briefing and destination choices*





● *Read conventionally or search for topics*



● *Whale hunting with a harpoon*

● *The complete range of available information*

Thar she blows!

What do you know about whales? John Clemence looks at a package to educate

DO you know how whales swim, breath or breed? Do you know which are the biggest, the smallest or the friendliest? Would you know what whales eat or why, and how humans hunt them? Do you even know how many sorts there are?

Well, if you are anything like me you probably thought you knew the answers to some of these questions and you probably had no real idea how little you really knew.

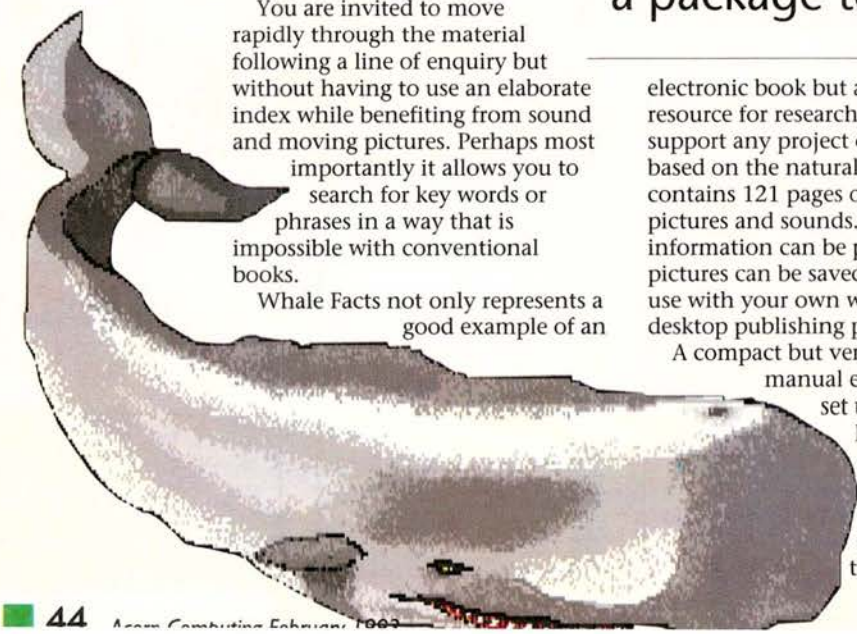
Whale Facts is a fairly substantial collection of information about whales but instead of being presented in a book it effectively turns your computer into an encyclopedia. Created using Longman Logotron's Magpie, the result is the combined effort of Topologika and Friends of the Earth.

Why not just buy the book? There are several reasons for using a computer in this way. An electronic book can be interactive and pages can be made to respond to the questions and interests of the reader far more immediately than conventional books.

You are invited to move rapidly through the material following a line of enquiry but without having to use an elaborate index while benefiting from sound and moving pictures. Perhaps most importantly it allows you to search for key words or phrases in a way that is impossible with conventional books.

Whale Facts not only represents a good example of an electronic book but also a useful resource for research which will support any project or topic work based on the natural world. It contains 121 pages of information, pictures and sounds. All the visual information can be printed and the pictures can be saved separately for use with your own writing or desktop publishing package.

A compact but very complete manual explains how to set up the software, how to find the information you require and how to make full use of the system.



PRODUCT SPOTLIGHT

Product: Whale Facts
Price: £29.95
Supplier: Topologika, PO Box 39, Stilton, Peterborough PE7 3RL.
Tel: 0733 244682

Copyright-free work sheets and three quizzes will test how much you have learnt.

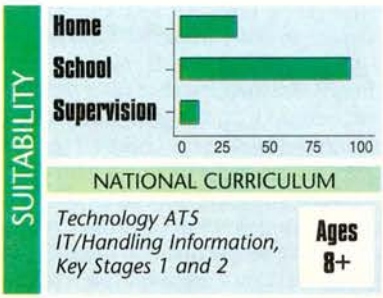
However, if you can organise the quiz and the whale facts files in such a way that they are both available at the same time you can also test your search skills on the main file in order to answer the questions to the quiz.

Unfortunately, the information given in the manual on carrying out a search is not quite complete. I was fortunate in having to hand the original Magpie software and manual which gave me a far clearer understanding of how this is carried out.

It can be based on exact matches which is very clear and unambiguous. If you turn off the option for *Exact matches only* the results you end up with are not nearly so understandable, as text containing words similar to those being looked for will be found too. The search words may also be separated by any number of other words. This can be very powerful but does not always lead you directly to the information you are seeking.

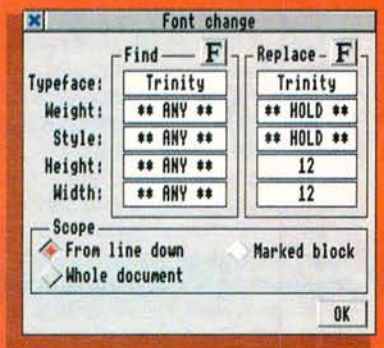
Summing up

This is a quality package useful for both its content and the experience it gives children of the means by which the information is stored and retrieved.



MEET THE NEW ADDITION TO THE PENDOWN FAMILY

Longman Logotron introduces a brand new word processor, with all the ease of use of the famous PenDown and with powerful new features, including:



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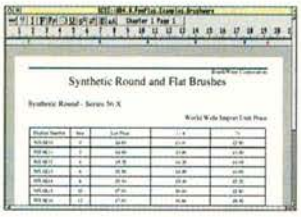
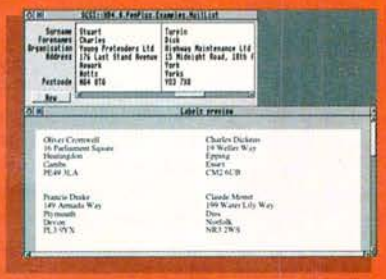
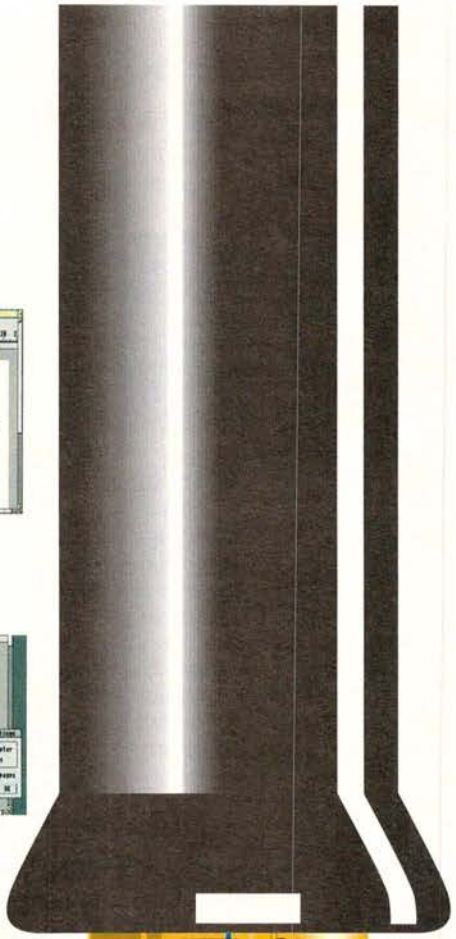




LABEL PRINTING on any kind of RISC OS supported printer.

MASTER PAGES (single or double) and chapters, for creating headers and footers.



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A taste of honey

Marshal Anderson does a bit of eavesdropping with a difference

● *Momentous events at Number 62*

Marshal Anderson has been teaching for 14 years and has been heavily involved with computers in education for many years as user, teacher and programmer.

He has been using Acorn machines since 1982 and his first commercial programming success came when he programmed Stig of the Dump.

PRODUCT SPOTLIGHT

Product: Number 62 Honeypot Lane
Price: £29.95
Supplier: Resource, Exeter Road, Wheatley, Doncaster, South Yorkshire DN2 4PY.
Tel: 0302 340331

SOME time ago Resource published a very popular package called Honeypot Lane, a simple but effective exploration program that had the children looking at the goings on along a road. Number 62 Honeypot Lane extends this idea into one particular house.

What we have here is a computer model of a year – 1991 – in the life of a family, starting with the move into the house on the 3rd of January and going through to the re-appearance of the For Sale sign at the end of December – we wish them luck. The passage of time is controlled from a menu presented at the front of the house offering the time, day and month.

You can get a good idea of what the package is all about from here. Clicking on the time will take you through the day with the sun rising and setting. When it does this depends on the time of year and throughout the day the weather may change. Clicking through the months will cause the tree in the garden to cycle through its seasonal changes, you may also see snow appear.

This is how the program runs – no matter where you are in the house the picture you see relates to the time of day and year. You enter the house by clicking on the door, the pointer changes from an arrow to a hand for places you can actually go, and arrows along the base of the picture can be clicked on to change your view.

Children who have used Honeypot Lane might find this a little confusing as similar arrows in that program actually changed your position.

Having entered the house you can click on objects for further information and generally explore. There are all sorts of things to discover. For instance, if you enter on a school day morning at 7am you will find the children, Elizabeth and John, still in bed. At 8am the breakfast table is laid and by 9am they have gone to school, their coats having gone from the hall.

Other events happen in the longer term. A baby is born in February and the contents of the house change accordingly, various birthdays take place, pets escape and can be seen running or flying around the rooms at various times, Pavarotti the dog joins the family on dad's birthday and so on.

An amount of narrative is provided by the grandparents who go to an old people's home from which they escape, clues to this and other events appear on the kitchen notice board. A certain amount of fantasy is added with some pottery mice who roam about at night and the adventures of the hamster, once you've found where it's hiding.

The illustrations are all excellent and many are animated, there is a real sense of place. Moving around the house can be a bit trying as it's not always clear which way you are facing – some sort of compass function might have helped but on the other hand it does sharpen up children's directional skills.

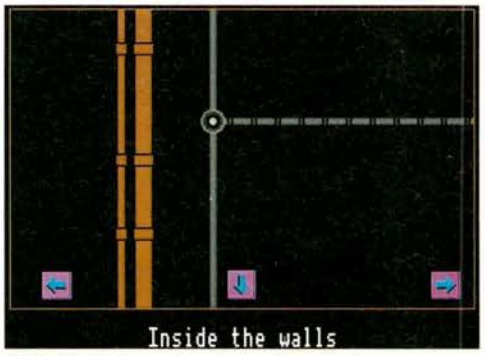
A map is provided to help you get around and children could add detail to this. An additional feature I would have liked would be to change the time while actually in the house to watch change in a particular room but this is a small point.

● *The birth of the baby brings on changes to the household*

Summing up

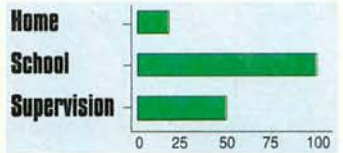
The package covers a wide range of ATs in the National Curriculum and schools that are into meticulous box ticking might find this all a bit vague but if you're still into open ended work this package will provide loads of inspiration for a variety of work, plenty of suggestions are provided.

In the home parents would need to give a deal of thought to how they were going to direct their children in the use of the package as there's not enough of a hook to keep them interested in the software alone.



● *So that's how the mice get around*

SUITABILITY



NATIONAL CURRICULUM

NC: Various – KS 1/2

Ages 6-11

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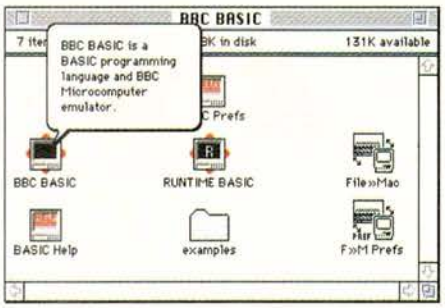
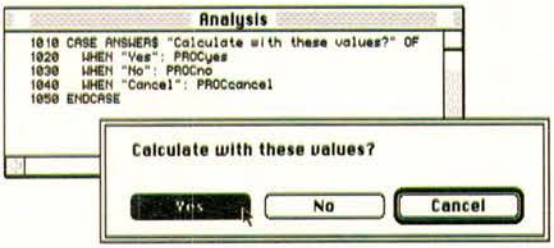


Balloon help provides instant information about the menus and dialogue-box options.

Save Graphics option saves the BBC BASIC graphics screen as a PICT file that can be loaded into other programs.

Runtime BASIC utility converts your BASIC programs into stand-alone double-clickable Macintosh applications.

Macintosh-style interactive editor provides a scrolling view of program listings with convenient cursor or mouse editing. You can work with any font available on your system and you can display keywords highlighted in bold for easy reference.



Macintosh Toolbox interface allows you to define your own menus, dialogue boxes, and scrolling lists using convenient BASIC keywords, and use the standard file dialogues for opening and saving data files.

Dynamic tracing and debugging lets you run or step through a program, highlighting each statement as it is executed, and you can display the values of any variables or expressions.

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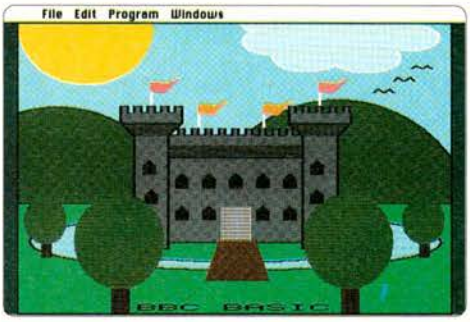
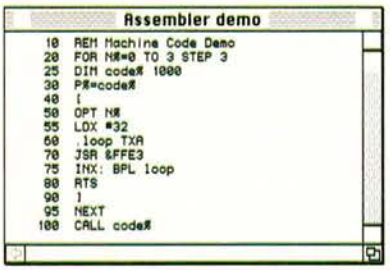


Emulates BBC Microcomputer graphics and screen modes, including Teletext. Work in full colour on an LC or Macintosh II, or grey shades on a monochrome Macintosh.



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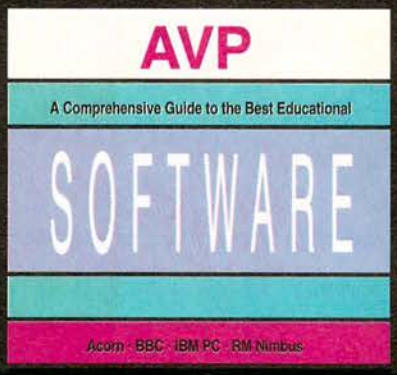

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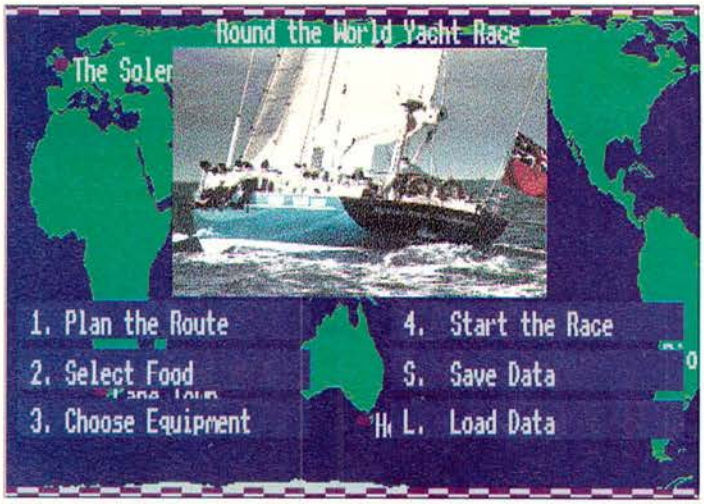
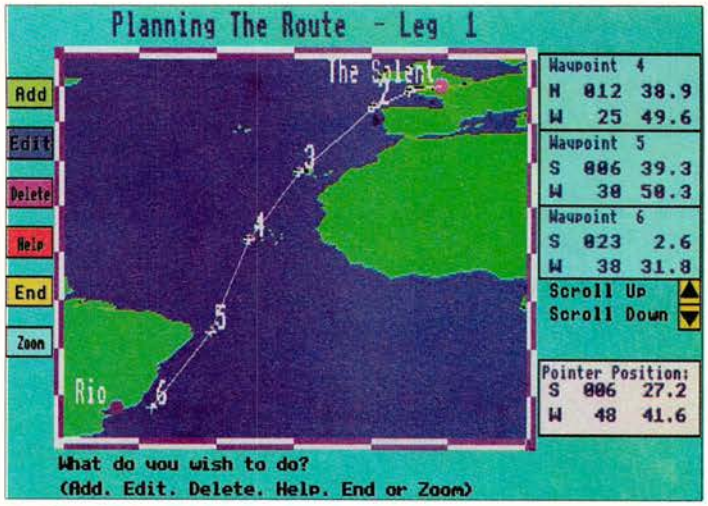


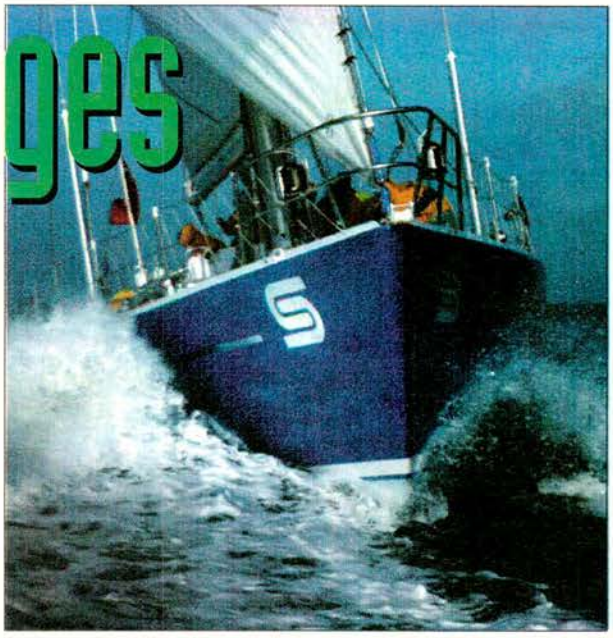
● *The menu features good mode 15 graphics of the real race*



● *Select the best course to beat the opposition*

Nautical challenges

Marshal Anderson weighs anchor and sails the ocean blue



PRODUCT SPOTLIGHT

Product: Round the World Yacht Race
Price: £34.99
Supplier: Storm Software, Coachman's Quarters, Digby Road, Sherbourne, Dorset DT9 3NN.
Tel: 0935 817699

ON 26 September 1992, 130 or so yachtsmen and women left Ocean Village in Southampton to spend eight months sailing 28,000 miles just to get back to where they started.

Now, this may be your idea of a good time – I have the strait-jackets here – but if it is, you're too late, by the time you read this they'll all be in Rio. You can, however, follow the fleet around the world from the comfort of your own computer. It's safer, quicker and a good deal drier.

Round the World Yacht Race is produced in conjunction with British Steel who have entered a boat made of steel for the race.

The software allows up to 10 teams to sail their yachts against each other over the four legs of this jaunt and it goes something like this.

First plan your route. This is done on a map of the immediate chunk of the world concerned with that leg of the journey. You set up a series of waypoints through which the boat will sail. This is done either by typing in latitude and longitude directly or by using the mouse to point and click on bits of the sea.

Each waypoint is checked to see that you don't try and take any overland short cuts before you go on to the next. Waypoints can be added and edited and you can zoom in and out from the map, though this tends to be a bit slow on and ARM2 machine.

Now it's time to lay in the grub. No danger of weevils in the hardtack here, these modern seafarers get lasagne, lamb curry and cheese cake among a huge list. The basic idea is first to work out how long it will take to do the trip then, based on 4,375 calories a day, lay in enough food to get you there.

You enter the number of days and the program keeps a running total of the calorific value of the food you have selected. And you need to select a lot because 4,375 calories is equivalent to 12.5 portions of vegetable chilli.

The program notes suggest that the crew will do best on a balanced diet but I must say that mine seemed to thrive on a fibre-free diet of red meat and chocolate.

Next you get to choose equipment. This is a bit vague – is this supposed to be a list of optional extras or essentials? The list includes things that even I might know about – I want a rudder and some sails, for instance. Considering the complexity of the route and food choices this seems rather simplistic.

And so it comes time to cast off with merry yells of *Avast behind*. A compass shows your intended and actual heading and you can use the arrow keys or mouse to try and keep on course.

Various text windows give information about your position and sundry hazards. At the end of each sailing week you can get further information about your

➤

● *Make sure that your crew doesn't go hungry*

➤ position in respect of the other boats, a report on the past week, save the game position and change the route. The save option is important and would be absolutely vital if you have several crews.

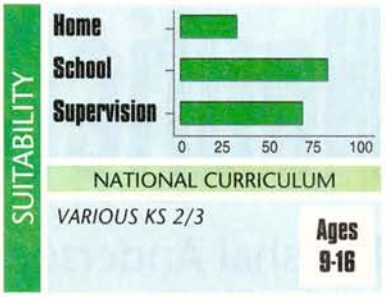
And so it goes: The Solent to Rio, to Hobart, to Cape Town and back to The Solent. At the end of each leg you are given the time for each boat and the cumulative time.

Summing up

The package is an implementation of a black box system.

The real value will come from what you put around it in terms of support and back-up and British Steel have organised a range of resources including wallcharts, worksheets and a database on Campus 2000.

Because of the backup required Round the World Yacht Race isn't really suitable for home use unless you're boating fans but it would certainly provide the focus for a lower secondary integrated project.



Tracking Katy

Pat Janes takes a look at a special needs program

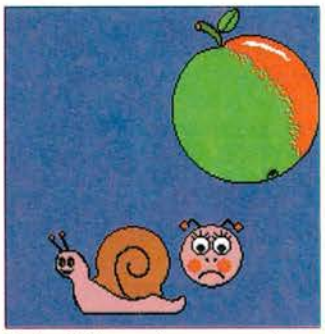
Pat Janes has taught across the age and ability range for nearly 40 years. In particular she has worked with children with learning and behaviour difficulties and with disaffected students. She also coordinated a support team based in special needs faculties.

PRODUCT SPOTLIGHT

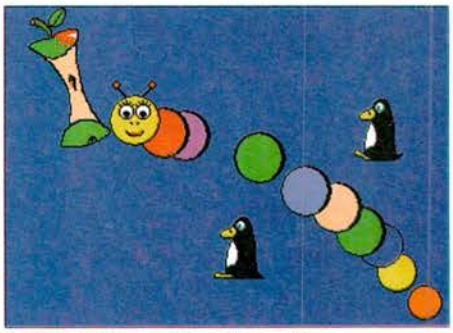
Product: The Adventures of Katy the Caterpillar
Price: £12
Supplier: NW Semerc, Fitton Hill CDC, Rosary Road, Oldham OL8 2QE.
Tel: 061-627 4469

THIS program is intended to develop visual tracking skills in pupils with severe learning or visual difficulties. The introduction is pleasant and promising with clear and colourful graphics. Most of the setting up would have to be done by the teacher though.

The task is for Katy – the caterpillar – to be dragged around the screen to avoid obstacles and reach the apple. A sound and visual reward is given if you succeed but if she bumps into an obstacle she goes red and – if you have selected the sound option – there is a crashing sound. I should have liked the apple to appear to be eaten by Katy rather than for it to just disappear.

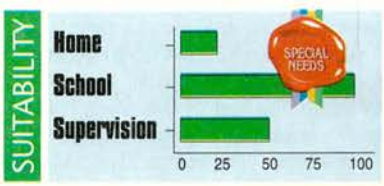


● *Avoid the embarrassment of bumping into the obstacles*



● *Success in reaching the apple means a meal for Katy*

This program is well-thought out but needs some more work to be of real value. In my experience students benefit most from working through increasingly taxing levels with the movement from one level to the next being a point of discussion and negotiation between teacher and student. I would also like a means of recording the student's progress when you press Escape to restart.



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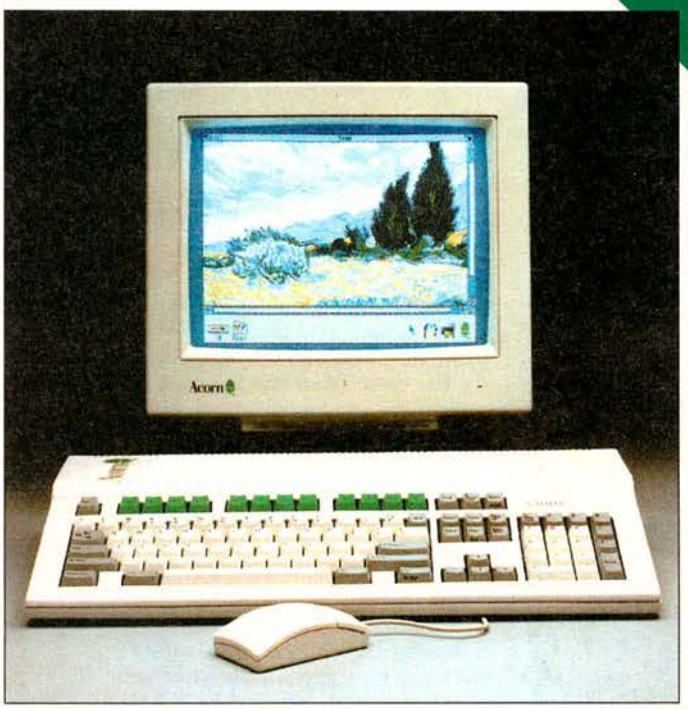

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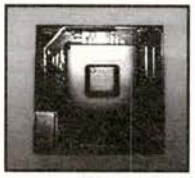

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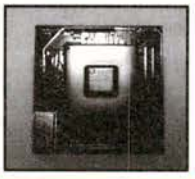

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Slick on the Draw

EVER tried to produce a 3-D drawings in Draw? Well I have and freehand versions do not always look right. In a bid to produce professional results, here are some simple routines that will add accuracy and realism to your drawfiles. I claim no originality for the concept or the formulae, only their implementation within Draw.

In draughting terms an isometric drawing is a view which depicts a 3-D object in which dimensions are altered equally and surfaces are skewed to produce an accurate 3-D visual projection.

If we were to think of the screen as having three dimensions, rather than just two, and we labelled them X-axis for width left to right, Y-axis for height top to bottom and Z-axis for depth front to back, this will give us a set of reference co-ordinates from which to work.

To produce the effect of the Z-axis, we need to shorten things which are further from our eyes.

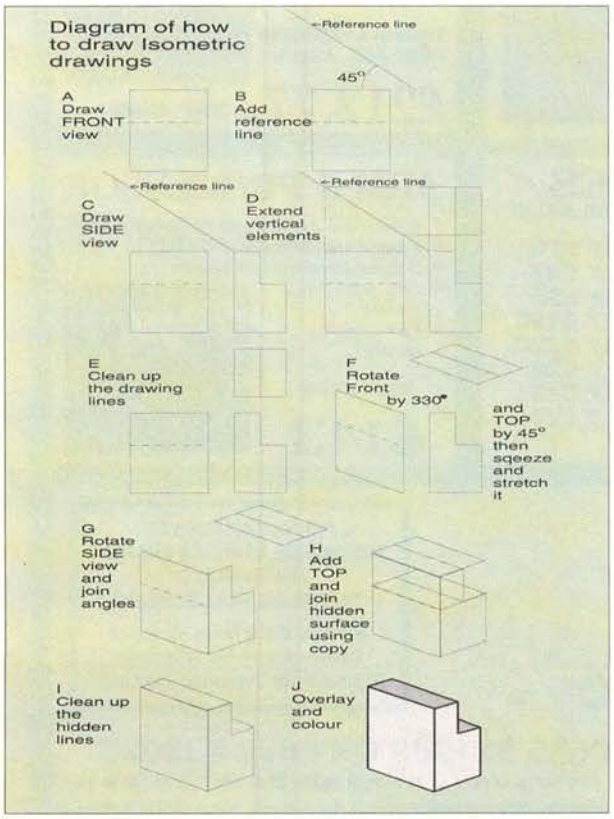
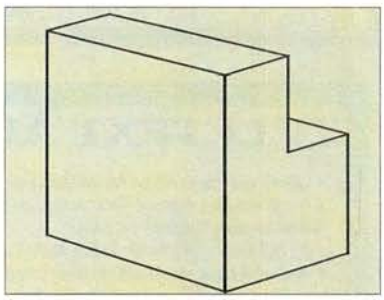


Diagram of how to draw Isometric drawings
<-Reference line
45°
A Draw FRONT view
B Add reference line
<-Reference line
<-Reference line
C Draw SIDE view
D Extend vertical elements
E Clean up the drawing lines
F Rotate Front by 330° and TOP by 45° then sqeeze and stretch it
G Rotate SIDE view and join angles
H Add TOP and join hidden surface using copy
I Clean up the hidden lines
J Overlay and colour

● *Step by step creation of a 3-D isometric shape*

The other important thing we need to know is what our object looks like from various angles and from the top, side and front. This can be represented by three 2-D drawings.

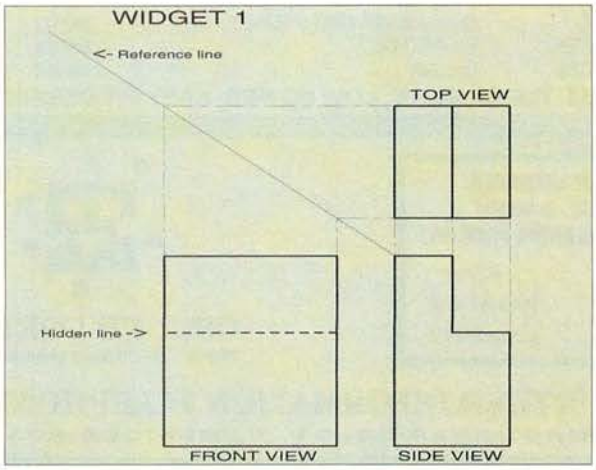
Drawings of this sort are called orthographic – a depiction of a 3-D object with separate representations for each of the object's planes or surfaces.



... and the finish 3-D shape

Starting with basics

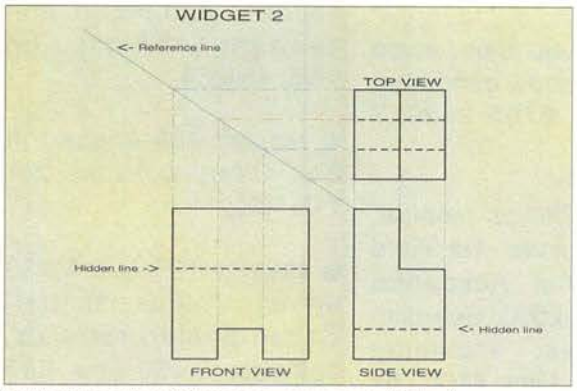
The first step in producing a 3-D object is to decide on what we want to draw. Using Draw, select a suitable grid size – the default size of two dots per centimetre is quite adequate for simple, non-detailed objects and have gridlock on as it helps to draw straight lines. Draw the front view first near the centre of the page. My example is 5cm high and 3cm wide. Use the single line option – top choice in the Draw tools – to draw all lines as this makes them easier to move around later. When the view is complete select all the items and group them.



● *Widget 1 in its two dimensional aspect ...*

Follow this with a single line starting from 1cm to the right of the front view, top right corner of the front view, and going out to the left at 45 degrees. This is the reference line. Draw the side view 1cm to the right of the front view, again using single

In Part one of a two-part series, David Reid shows how to make your isometric drawings easier and more realistic



● *Next month we'll create a more complicated widget in two dimensions ...*

lines and grouping the entire object when finished.

Now draw vertical lines from the top of the front view so that they intersect the reference line, one extension line for every vertical line in the front view.

Then draw horizontal lines to the right from the intersection to provide base lines for the top view.

Next extend the left and right sides of the side view so that they intersect the horizontal lines previously drawn, tidy up the lines to produce a simple square and group the top view. This is now exactly the correct size for the top view.

A simpler way to draw the top view would be to start the top 1cm above the front view and draw the square the correct size using the rectangles tool, though this will only work on simple block type objects without hidden lines or curved surfaces.

The way I have described is the proper way to do the top view, and will work for any shape of object. You simply need to project all the vertical lines of the front and side views and if they intersect the reference line then project them horizontally to the right of the reference line.

With the graphically correct orthographic drawing, we can start turning it into a 3-D isometric drawing. Choosing the isometric option in the grid sub-menu. The X-axis surfaces are skewed by 30 degrees, the Y-axis surfaces by -30 degrees and the Z-axis surfaces by +30 or -30 degrees.

Now select the top view and using the transform sub-menu choose Rotate and enter 45, to rotate the top view 45 degrees. Then using the transform sub-menu choose X-scale and enter 1.23, to enlarge the length of the top by 123 per cent and shrink the Y-axis by entering 0.71in the Y-scale sub-menu option to foreshorten the height to 71 per cent of the original size.

This gets the top view into the right orientation and scale for our 3-D isometric drawing. The next step is to alter the front and side views. The easiest way to do this, is to select the front view and move it to a grid square – you will have to switch grid-lock off to enable you to position the lower right corner correctly on a grid cross. Ungroup the front view and select the bottom line.

Transform rotate

Using the transform rotate option, rotate this by 330 degrees. Select the horizontal hidden line and rotate it also by 330 degrees. Finally, select the top line and repeat the process.

At this point, you can select all three lines and move them so the right ends align with the vertical line on the right of the front view. Now select and move the left line to join those you have just rotated. When you are happy they are all correctly joined, group them again.

If the shape is more complex, this needs to be done on all horizontal lines in the front view, but each line must be rotated individually and not as a selected group.

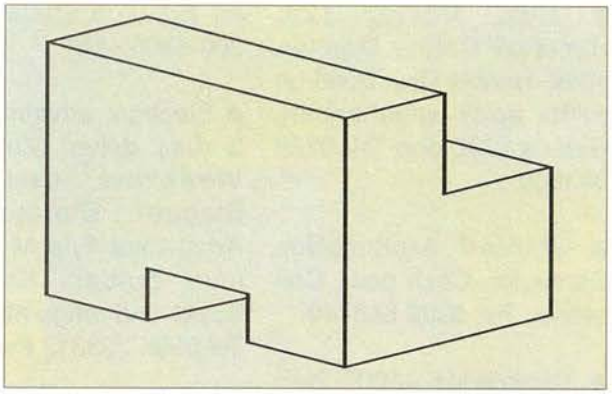
Similarly the side view horizontal lines are rotated, but to and angle of 30 degrees. Again, when happy with the joints, regroup the side view, move this view and mate the two edges of the front and side views and group these two views together.

Finally select the top view and move it into place mating with the top edge of the front view and the top edge of the side view. Select the top view and make a copy using select copy sub menu. Move the duplicate so that it aligns with the hidden line and – using my example widget – the flat of the bit which sticks out.

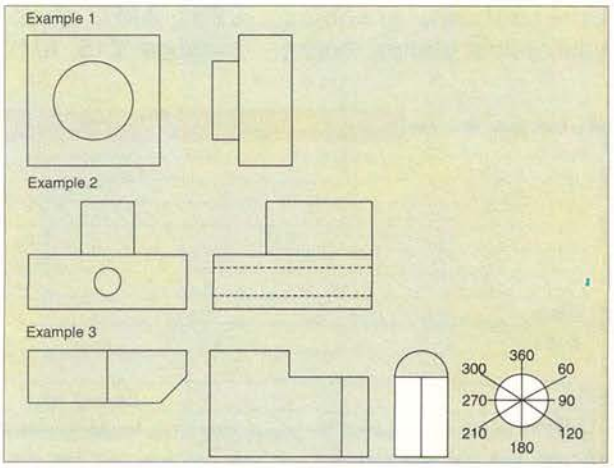
Ungroup the three views and remove the excess lines. Tidy up some of the joins and you should have a 3-D isometric view of your drawing.

If you want to colour your shape, simply trace over each of the faces with a new line, using the rubberband option of the lines tool to outline the faces of the object and then fill this outline with the colour of your choice. The underlying original can now be deleted to save space and re-draw time.

● *Next month David will complete the task by looking at more complex isometric drawings.*



... and finally in three dimensions



● *Some further examples of what you can achieve*

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● Master 128 unused in box, Offers welcome 061 748 7852

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Computer Concepts supply the BJ200 with a special version of their TurboDrivers - the fastest printer drivers available for the Archimedes. The printer also includes a built-in 80 page sheet feeder. The price for the printer with TurboDrivers is just £299 + vat (+p&p) - a full £100 less than the recommended retail price.

At 360 dpi the BJ200 offers significantly higher resolution than other 300 dpi inkjet printers and at faster than 1 page per minute for a full page of graphics (or 3 pages per minute for plain text) it is also faster than other printers in its price range. And being an inkjet printer it is whisper quiet when printing.

RISC OS Turbo DRIVERS

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Speed comparison table.

Comparison print times using Acorn printer drivers with a DeskJet500 against TurboDrivers with a BJ200. All times are in seconds shown on ARM3 and ARM2 based computers.

To print a 4 page document consisting of a spread of different fonts, text sizes and graphics:

	DeskJet 500	BJ200	Speed increase factor
Time to get control back - ARM3	313	59	5.3
Last page completed - ARM3	316	200	1.6
Time to get control back - ARM2	832	155	5.4
Last page completed - ARM2	834	232	3.6

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PRODUCT SPOTLIGHT

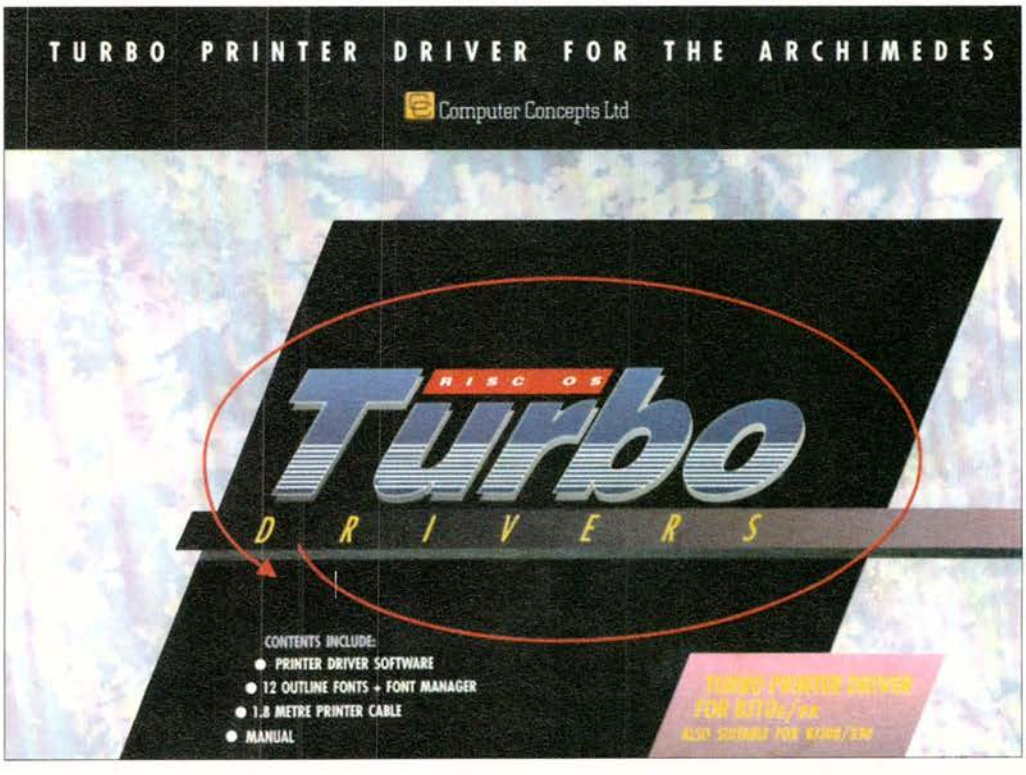
Product: Risc OS TurboDriver BJ10
Price: £49
Supplier: Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.
Tel: 0442 63933

ANYONE with an Acorn 32-bit machine will be well aware by now that getting a printer up and running can be a frustrating experience. It is rare to be able to simply plug in and start straightaway – even though the drivers make it easier. In addition, the time spent waiting for a printout doesn't encourage productivity.

Computer Concepts have tackled this long-standing problem by launching the TurboDriver. This series of printer drivers is tailored exclusively to one printer, to avoid many of the configuration hassles which plague ordinary models. Colour Turbo Drivers were featured in our November 1992 issue, but here we're be looking in some detail at the Canon BJ-10 driver.

The TurboDriver arrives with everything you need: Software, printer cable, instructions and three standard outline fonts together with the latest version of the Acorn outline font manager, if you need it. A package including the BJ-10 printer itself is also available.

The fonts supplied – Trinity, Corpus and Homerton – are in fact the same as those supplied in the Risc OS 3 roms and so they will be of little use to A5000 owners or anyone thinking of upgrading. However, they would make a good starting point for Risc OS 2 users



Overdrive

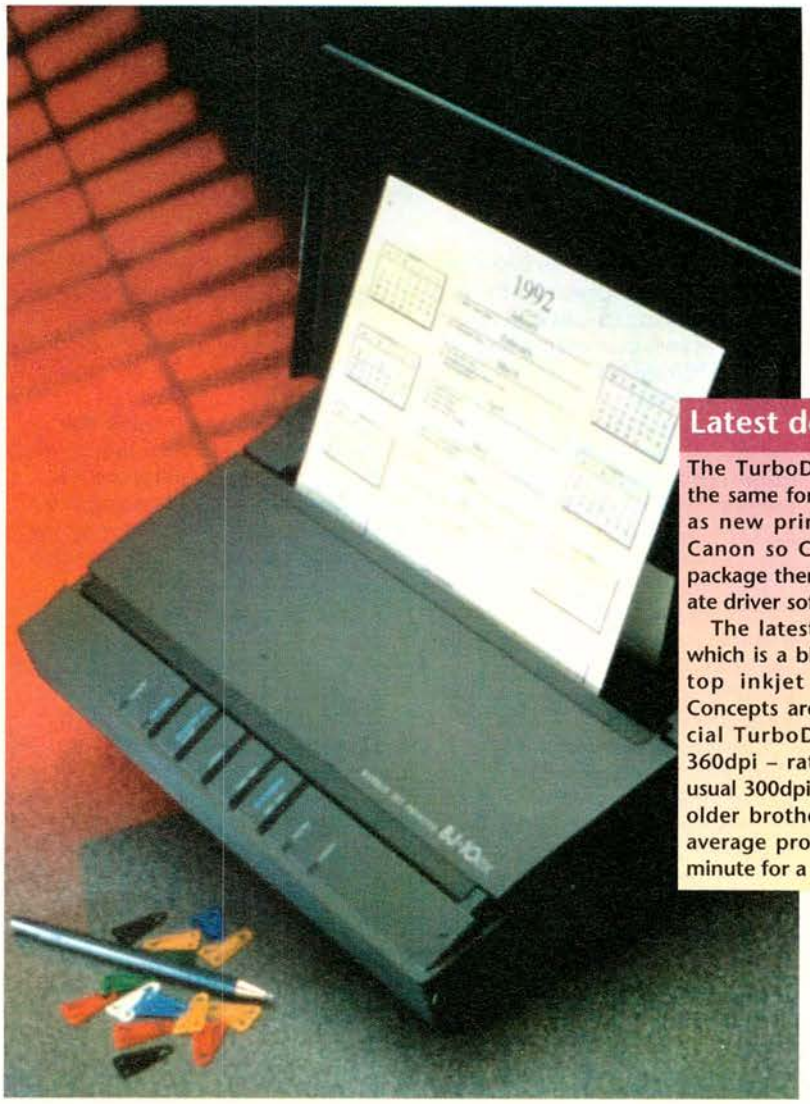
When printing under Risc OS, the application engages in a dialogue with the printer driver currently installed. The application gives instructions, such as the position of draw lines and sprites which are used to build a page image to send to the printer.

Depending on how much memory you have, the driver can build all the page or perhaps just do sections at a time. When a section is complete, the driver sends it to the printer through the serial or parallel port. The rendering and sending process usually occupies all the processor time, which is why you are locked out of your machine.

TurboDrivers use the same principles but employ a different internal mechanism which makes use of a *page queue*. Once a page has been rendered in memory, the image created is sent to a queue of pages, all of which are waiting to be output.

During the print process, the driver takes the page at the front of the queue and begins sending it to

Amit Gupta takes an in-depth look at the BJ-10 TurboDriver



● *A slick printer now with go-faster stripes courtesy of Computer Concepts*

Latest developments

The TurboDriver philosophy is the same for all the printers and as new printers emerge from Canon so Computer Concepts package them with the appropriate driver software.

The latest baby is the BJ200 which is a black and white desktop inkjet which Computer Concepts are selling with a special TurboDriver for £299. At 360dpi – rather than the more usual 300dpi – it is faster than its older brothers and is faster on average producing 3 pages per minute for a simple text file.

the printer in the background, while simultaneously rendering the next page.

This method of printing has several advantages over the Acorn method as it ensures optimum use of processor time and once the last page has been rendered and sent to the queue, you can use your computer again.

Practical use

The TurboDriver will not work with a standard parallel cable, needing its own special cable which connects between the parallel port and the Canon BJ-10.

Also supplied is a manual which contains a step-by-step guide to setting the options as well as hints on getting the best results from the printer.

The essential information required to get the system set up and working – for example, setting the DIP switches inside the printer, and the meaning of various error messages which may arise – is located near the front of the manual.

This lets you ensure the system is fully working before dabbling with the Preferences screen. The driver itself loads as a series of modules and loads the usual icon on the left of the iconbar.

In common with the LaserDirect range of printers, the icon is capable of reflecting the state of the printer. If the BJ-10 is not responding for some reason a warning triangle appears over the icon as an invitation for you to check whether all is well.

If you have a machine with a bi-directional parallel port – such as the A5000 or the new A3010/A4000 series – the software can detect whether the printer is switched off, or whether no paper is present and amend the icon accordingly.

However, when using dongled software – such as Impression – the driver sometimes became confused and crashed with a continuous error even though the printer was set up correctly. The manual does warn of this and the solution is to use the Ignore Status option in the Preferences window.

Clicking Menu over the TurboDriver icon produces a main menu reasonably similar to that of PrinterDM and PrinterLJ. There are options for outputting either straight to the printer or to a file – in both cases a familiar save box is provided with an icon to drag to a directory viewer.

In the case of output to a file, the icon represents the location of the file and in the case of printer output, ➤

As fast as you can, my man!

The software uses two tricks to squeeze extra performance out of the machine. The first is down to the direct parallel port access.

The built-in OS parallel port calls are comparatively slow, since the operating system has to decode them every time.

TurboDrivers bypass the Risc OS kernel and write directly to the parallel port resulting in a massive speed increase.

The other technique is called FastText. The Risc OS font printing routines used by most drivers are generic and not optimised for the high-resolution mono printing produced by the BJ-10 – the FastText system reads the font definition files and computes its own bitmaps.

Clever as such techniques are, they do raise the important issue of compatibility with future Acorn hardware and operating systems. Acorn stipulate that direct hardware access must not be used since the location of hardware devices in the memory map or the internal format of files may change which could render the software inoperative.

Computer Concepts have given a token nod to this idea by allowing you to turn FastText on or off from the Preferences screen in case the font format changes. But the question of direct parallel port access remains.

the location of the page queue.

Where does the page queue go? In theory it can reside on any filing system, with a hard disk being the neatest solution. However, trying to use a floppy disk to store it is virtually impossible due to the amount of disk swapping.

As the driver alternates between reading fonts and updating the page queue, replacing the disks becomes tedious as well as invoking the dreaded *Filecore in Use* error if you have Risc OS 2.

If you have a floppy-only system the best solution is to use the ram queue option but as this eats memory you may lose the benefit of background printing if the driver runs out of memory.

This problem is not the fault of Computer Concepts or Acorn – it is a simple consequence of the vast amounts of data that an uncompressed page image occupies in memory.

Consider the following – an A4 (11in x 8in) page printed at 360 dpi has an effective resolution of 3,960 by 2,880 dots, producing a staggering 1.36Mb of data.

The TurboDriver does an admirable job of coping with such volumes in as little as 64k of free memory, but there are some things which it simply cannot do without sacrificing print quality. If background printing is important to you then 2Mb or a hard drive are essential. But the speed of the software may mean that the foreground printing times are acceptable.

Among the usual choices of resolution and paper size is the ability to set the screen ruling – the higher the screen ruling the less noticeable the dots that make up the image. But this is offset by the reduced number of greyscales that can be reproduced.

The Beyer setting gives a very fine screen and though the manual warns of possible imperfections due to the mechanical tolerance of inkjet printers, in practice such imperfections were barely noticeable.

Indeed this setting gives the best overall results, particularly with greyscaled sprites. There is also an option to specify the font to be used when outputting plain text – although there is no facility for direct printing of First Word Plus files with style information, as there is with the Acorn drivers.

From a software point of view, the TurboDriver behaves just like any other Risc OS printer driver. But how fast is it? And, more importantly, what quality are the results?

To answer the first point I ran a series of tests were run on an ARM 2 machine with 2Mb memory and no hard drive – generally agreed to be representative of most machines. All test pages were printed from Draw and the page queue was spooled to a 256k ram disk.

Computer Concepts' published benchmarks regarding speed were substantiated with text-intensive pages proving particularly quick to render, although graphics were also fast.

Vast improvement

The figures are certainly a vast improvement on those attained with the standard Acorn drivers. On average I found the TurboDriver to be two to three times quicker, from start to finish, than the same printer under !PrinterDM.

The results are stunning. The combination of the bubblejet technology of the BJ-10 using the dithering and halftoning capability of the TurboDriver produces near-newspaper quality.

This is certainly much better than the quality of dot-matrix printers and pretty close to that of a low-end laser printer.

Scanned photos and 256-greyscale sprites came out particularly well. The contrast was perfect and although the occasional smear was visible on the serifs of outline text, this was probably a result of using a new cartridge and not the fault of the driver.

Summing up

Although it is often difficult to come to a conclusion about printer drivers – they either work or they don't – the TurboDriver excels at its task of providing quick, high-quality output, despite the odd niggle.

The price may seem a little high for a printer driver, but in my opinion it is well worth the money and will more than pay for itself in terms of better productivity.

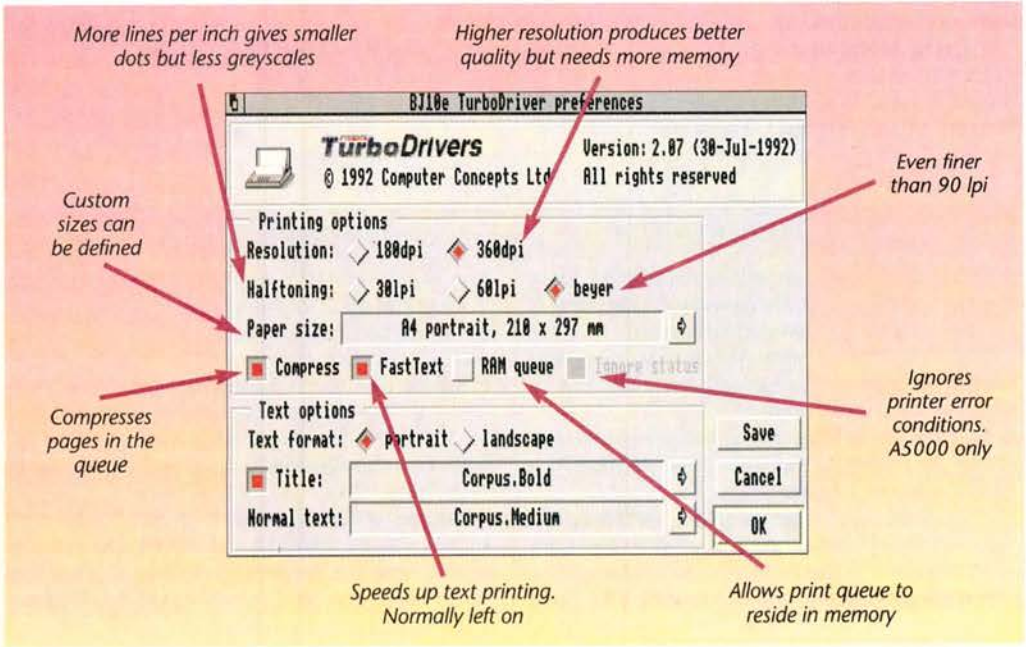
TurboDriver Benchmarks

	Time to regain control	Time to complete
A full page of 12pt text	36.8	190.6
DrawDemo file from Apps disk	22.3	86.9
A complex (20K) drawfile	140.6	194.6
A typical text/drawfile mix	75.8	195.9
Full-page sprite	247.3	334.1
AVERAGE	104.5	200.4

All timings in seconds from an ARM 2 based machine with 2Mb memory and no hard disk.

> From a software point of view, the TurboDriver behaves just like any other Risc OS printer driver

● *The TurboDriver preferences screen*


More lines per inch gives smaller dots but less greyscales
Higher resolution produces better quality but needs more memory
BJ10e TurboDriver preferences
TurboDrivers
Version: 2.07 (30-Jul-1992)
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Even finer than 90 lpi
Custom sizes can be defined
Printing options
Resolution: 180dpi 360dpi
Halftoning: 30lpi 60lpi beyer
Paper size: A4 portrait, 210 x 297 mm
Compress FastText RAM queue Ignore status
Ignores printer error conditions. A5000 only
Compresses pages in the queue
Text options
Text format: portrait landscape
Save
Title: Corpus.Bold
Cancel
Normal text: Corpus.Medium
OK
Speeds up text printing. Normally left on
Allows print queue to reside in memory

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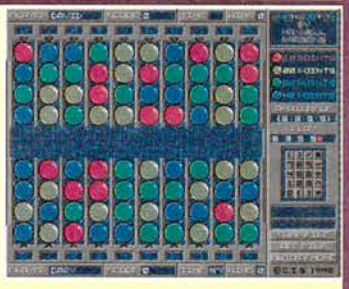

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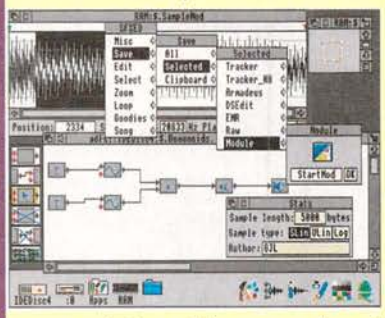

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HeroQuest

... let adventure commence

An adventurer's home may lok quiet...

...but underneath in the labyrinth...

...battle may be the only answer

THE kingdom is threatened by war and disaster. The armies of darkness are on the march and the safety of the land is at stake. As so often happens, the solution to these national crises lie with a small group of adventurers who set out to wander through underground passages, fight orcs, goblins, zombies and assorted nasties and – incidentally – help themselves to any loot that may be lying around.

HeroQuest is the first game of its kind for the Archimedes. It contains many of the elements that will be familiar to fantasy gamers and which first came together in tabletop role-playing. HeroQuest, however, is based directly on the boardgame of the same name, which is itself loosely based on tabletop games and is a good introduction to role-playing. This lengthy ancestry has a lot of effect on the way the game plays.

Fourteen separate quests are on offer, ranging from a last training exercise to a final assault on the enemy leaders. These form a loosely connected sequence but they can be played in any order.

Up to four players can take part, as barbarian, elf, dwarf or wizard – one of each only. At the beginning of each quest, the characters to take part are selected and loot from the last expedition can be turned into equipment for the next.

The graphics are quite nice, mainly comprising 3-D representations of rooms and corridors, with animated character movement. Various icons indicate a character's abilities. For instance possessions are in a pouch, body points are represented by a muscular arm while mental points are shown by a light bulb. Play throughout is controlled by mouse: Select an arrow to move a character, select the combat icon to fight and so on.

Each character's turn starts with a random selection of the distance he can move depending on the spin of the coin – one of the holdovers from the boardgame and occasionally a distracting one. Options then include searching for treasure or secret doors, fighting an enemy or – or elf or wizard – casting spells. The view can be switched at any time to an overhead plan of the area explored so far.

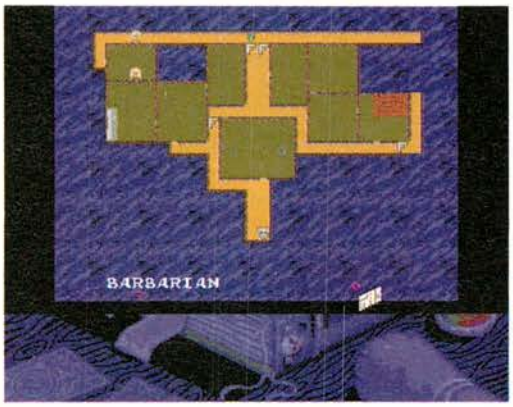
Combat is animated, but not inside the existing scene: For each blow the screen cuts to one-on-one fight between the two characters. Members of the party, by the way, can't fight each other, at least not physically. However spells can be cast at anyone. Thus, when at one stage the elf ignored the quest and fireballed my dwarf, the dwarf couldn't hit back.

The designers of HeroQuest have been careful to capture the feel and playing style of the boardgame. In doing so however, they have done a lot that tends to limit the game in a computer context.

A boardgame, unlike a computer game is restricted by the amount of figures and scenery that can fit in its box. Despite this, the designers have stayed so close to the original as to provide layouts that could fit on the game board and a very limited variety of backgrounds. Thus no matter where our heroes venture, into orc citadels or undead enclaves, the rooms and corridors look much the same.

HeroQuest the boardgame is a fun little thing which can be mildly addictive with a good group of players. The computer version should have much of the same appeal. If you are looking for a generic fantasy game however, be aware that HeroQuest is an animated boardgame, with many of the restrictions that entails.

Keith Martin



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AND FINALLY

Many more features which we want to be a surprise.
Probably a few more features we haven't even thought of yet, and....a few we didn't think up at all.

OLD FEATURES

Saloon Cars DELUXE still...
does not provide a realistic simulation of a full time office job,
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and it still isn't quite as good as actually going out for a drive in a Sierra Cosworth.

OLD REVIEWS OF *SALOON CARS v1.0*

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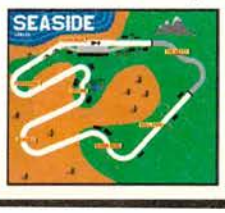
This new Course disc contains 3 superb new courses which are only compatible with the new *DELUXE* version. They cost £19.95 and will be released hopefully in late June '92.



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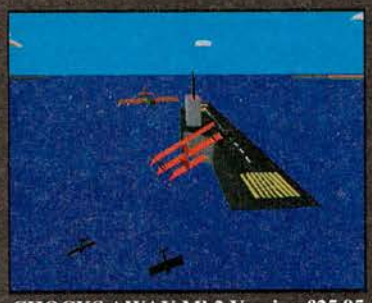

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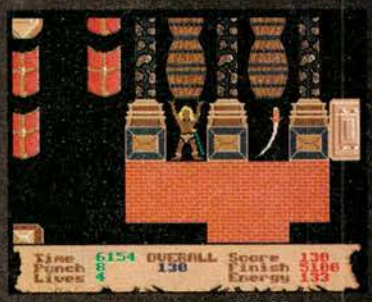

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Black Angel

..... the final frontier

AT last, Black Angel – the latest Gordon Key masterpiece – is out. For those of you unfamiliar with the man he started doing superb type-in games in *The Micro User*, moved into the commercial field with Clogger and then dived into the 32-bit market leading to the emergence of Holed-Out, E-Type (which he also converted for the 8-bit machines), Apocalypse and Superpool.

Anyway now it's plot time: You've got to wander around a galaxy looking for various parts of a key. This is actually a huge computer program left to us by an ancient advanced civilisation that seemed to have mastered just about everything from creating star gates for transporting you instantaneously around the galaxy, to getting all of the ketchup out of the bottle without using a knife.

Find one part of the key and you are given clues to the whereabouts of the next bit. But of paramount importance is surviving that long and in this universe there is no law and order and you'll need wit and cunning to avoid craft that will show no mercy to a greenhorn. You must survive long enough to find the secret of the past civilisation which may give you ultimate power.

The solution is to arm yourself to the teeth but to do that you'll need some hard cash. Being a basically honest character you'll have to work and you can buy job licences at any planet or space dock. The jobs themselves vary from refuse disposal to armed escort duty – life expectancy is inversely proportional to the payment for the job.

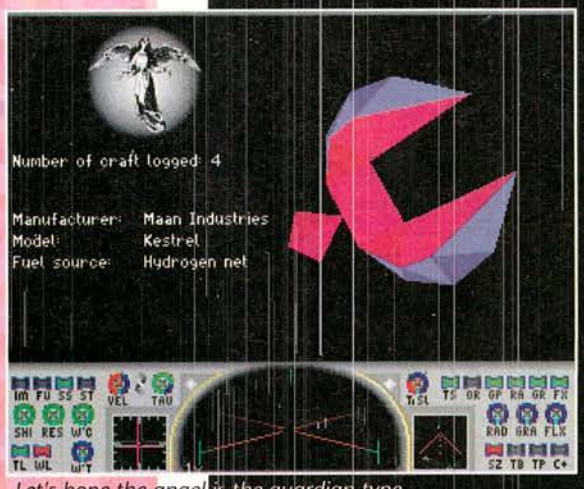
For a 4thD game the presentation is quite superb. The linking screens and incidental graphic are pretty good, too, with animation used where possible. Your view of the outside is most important though and I must say it looks wonderful. Gone are the simple shapes of past games replaced by *fully ordered multi-concave surface objects* or in layman's terms excellent vector graphics.

The planets aren't that good but it's difficult to portray them realistically and I can't think of a better way. The space stations are great with loads of pylons and things sticking out. The other craft that you come across are hugely varied and finely detailed but all are aggressive with different armaments and fighting styles.

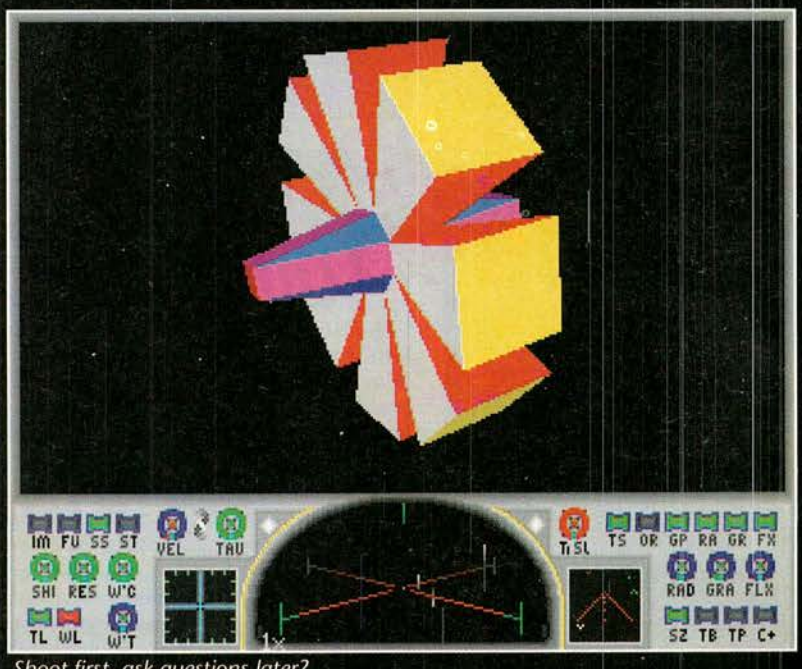
Sound? Well there isn't much in space – you've got whirring engines and pulsing lasers punctuated with the odd explosion which hopefully isn't you popping your clogs. Add the odd alarm and you end up with nearly enough beeping and booping to keep Spock happy.

The instrument panel in the bottom third of the screen is pretty functional but it has more dials and indicators than you can shake a tree at. In the centre is a very familiar radar display which is a close cousin – if not an irritating nephew – of the Elite radar display. The variety of craft and objects are displayed as different colours which helps identification and tells you when to run.

Next to that is a planetary mass



Let's hope the angel is the guardian type



Shoot first, ask questions later?

indicator showing you the position of the planets in the system as well as the star gate. This is a very nice touch and helps greatly.

Control is via the mouse and keyboard. Mouse movements control pitch – up and down – as well as yaw – that left to right feeling – while the keys control the roll of your craft. This takes some getting used too but its not impossible to master. The mouse buttons control forward and backward thrust and of course the other one fires your weapon.

About a third of the keys on the keyboard have a purpose which can be a little confusing at the start. You can select your weapon, access any one of your system screens or plot in a new set of coordinates and that's just the tip of the iceberg.

How your craft flies is a little bewildering as Gordon has gone for realism. You can travel in any direction – just follow the nose and then turn round to take a look behind and you'll feel just as if you're travelling backwards.

You have thrusters all over the place plus different levels of thrust from the big Super String to the less impressive Impulse Drive. After an hour or so of not knowing what's going on you should gradually be enlightened and become a pretty hot pilot.

Combat? You want combat? This game's got more death than the average disaster movie. Fighting isn't easy and I definitely came off worse when only armed with my basic laser. But if you can scrape enough cash together you can add a few enhancements to your ship. The next time a bunch of Teals try to make you late you can switch weapons, pick out one poor soul and wipe him out in an interesting and wholly satisfying manner.

My personal favourite author of destruction is a supergun which sprays 10 deadly balls of fire at the same time. This rips straight through the opposition and is very satisfying.

The more business-minded pilot can damage other craft just enough so they cannot move or return fire. He can then attach his tractor beam and relieve them of energy and raw materials. OK so this destroys the ship, but it's a small-green-furry-thing eat small-green-furry-thing universe out there.

There are loads of star systems to visit which can be viewed by the star map screen from which you can find a star and set its coordinates into the computer. Pop into a star gate and hey-presto you're there.

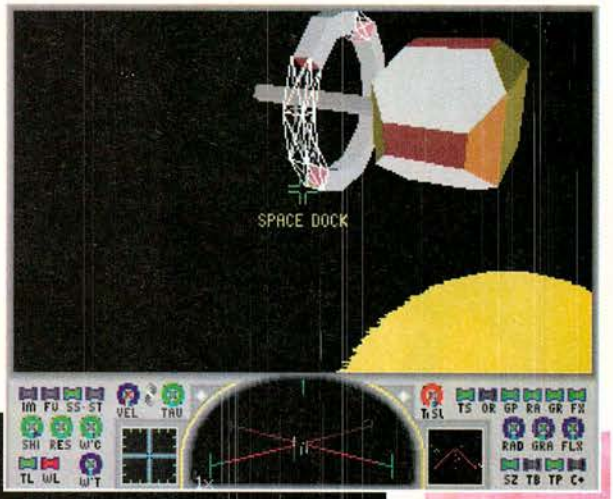
Unfortunately, there are problems. Black Angel can be unfair such as when you're set upon by a pack of other ships and there's nothing you can do about it. You can't even run as they tend to stick to you like glue. The only safe havens are the planet *safe zones* but they take time to get to. It can be unbelievably frustrating when you die in a hail of photon missiles. But then real life isn't fair either.

The large manual is inadequate as although it talks you through, it hardly touches on some matters such as the upgrades you can buy.

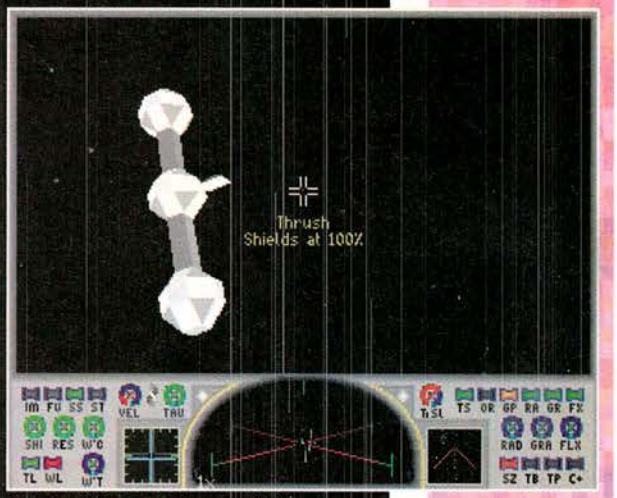
Black Angel must fall somewhere between Elite and Karma. It is more realistic than Elite but not as much as Karma – if it ever appears – though it is more playable than the Karma Flight Trainer. If you're looking for a game deeper than Elite and one that utilises the ARM chip then Black Angel will please you. But space epic it isn't.

Overall a well executed game with better features than Cindy Crawford that falls slightly short of the classic rating. Can Gordon J. Key write a bad game? No, just seriously bad ones.

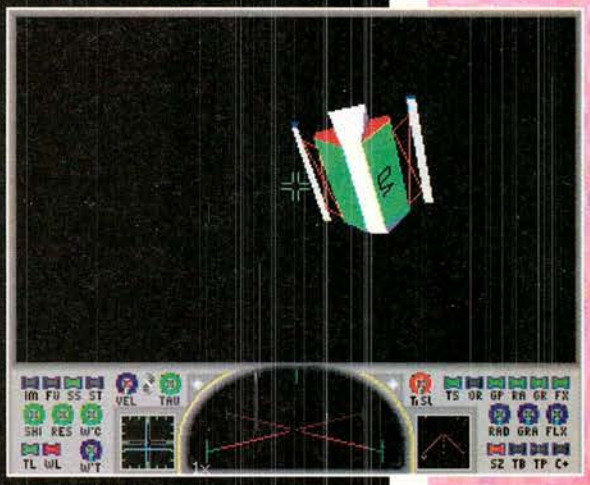
Ben Reilly



Docking in space has never been my strong suit



But is 100 per cent enough?



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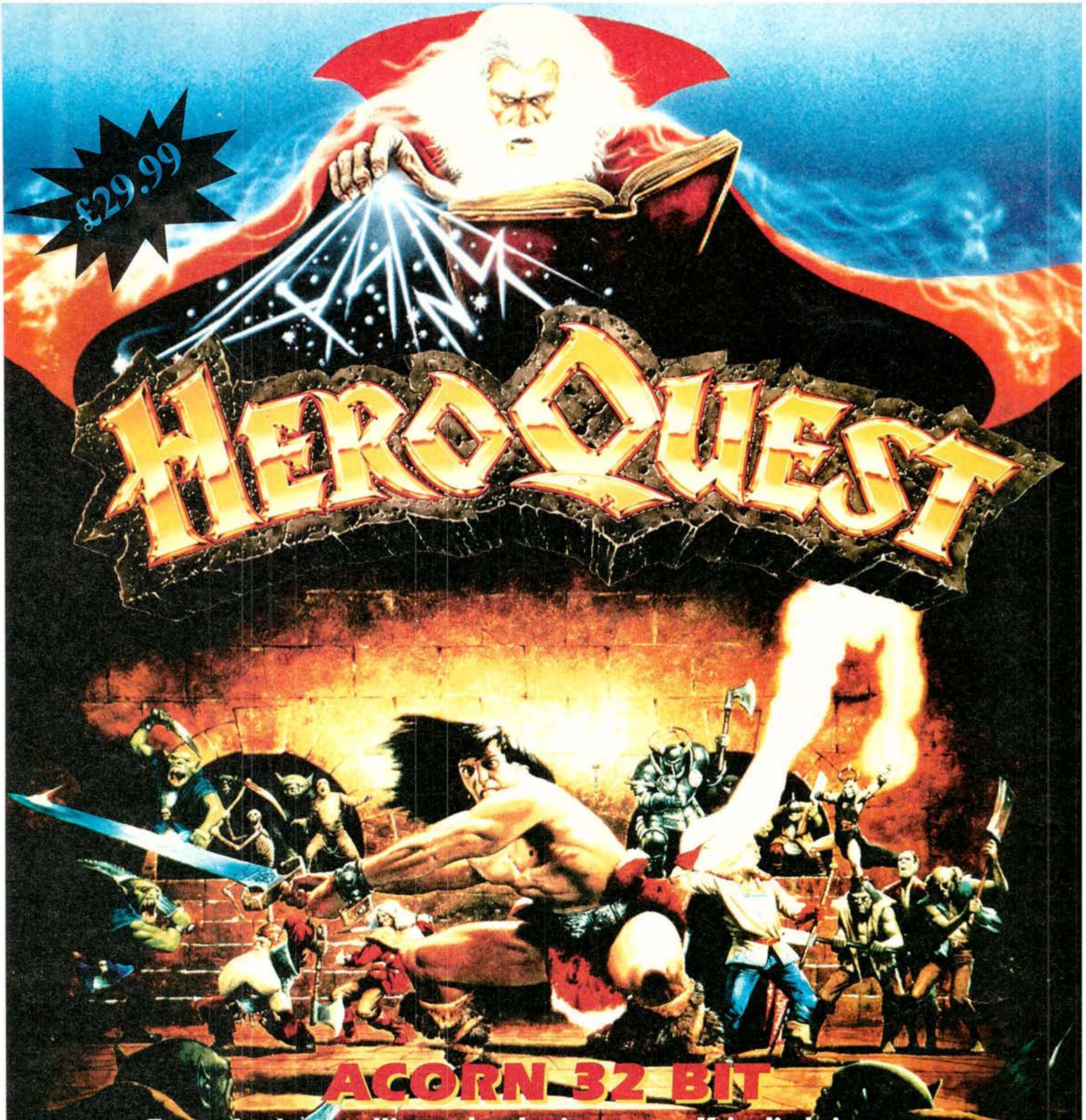

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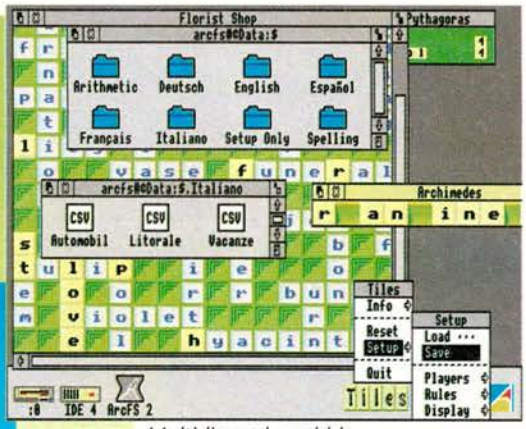
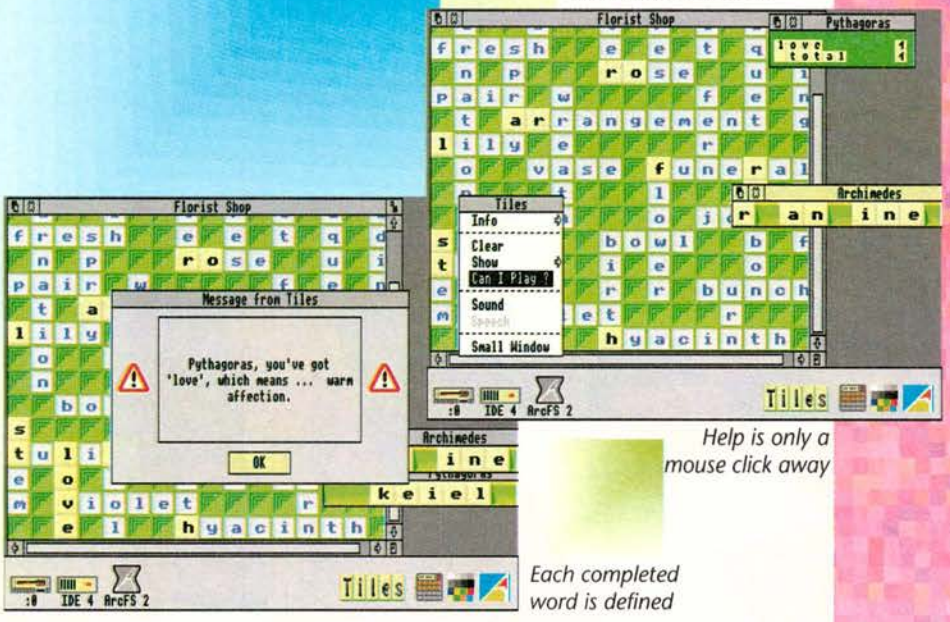
Tiles

... scrabbling for a crossed word



Multi-lingual scrabble



Help is only a mouse click away

Each completed word is defined

TILES is a new title from Brain Games and it certainly will put you to the test. Basically, it's a crossword-style game with Scrabble-like gameplay. Played on a grid similar to crosswords, the object is to build up various words by placing lettered tiles on to the corresponding letters on the main board. The manual supplied is 55 pages long which gives a fair idea of the depth of the game.

Once loaded on the iconbar Tiles allows you to choose help by clicking Menu on the mouse – it would have been nice to have seen a properly designed help system rather than just the text file that's loaded.

Up to four people can play against each other and each of their names is entered at the start then any of the supplied game boards may be loaded.

A selection of different style boards ranging from German letters through to arithmetic boards are provided, although I felt that not enough English word boards had been included – a Tiles Editor will be available in the Spring.

The main gameboard chosen appears and play can commence. The first player's computer-selected tiles appear on a small rack, alongside the main board. You can move these around on your rack and then drag them on to a corresponding letter on the board.

But you can't place the tiles just anywhere – that would be too easy. You can only put a tile at the start of a word, or continue it as the word is slowly completed. You are allowed to place up to two tiles per go.

One of the most important things to remember, is to plan ahead and look at what letter tiles other players have got. The first person to finish covering a word over, wins the points – one per letter – which are all neatly analysed in the corner of the screen.

Studying the board constantly for places to position a tile is often tedious, although the game does give you hints as to the number of places on the board your letters may fit.

On occasions, letters in your rack cannot be placed anywhere. You have an opportunity to swap any two letters with another two from the computer-generated pool. This is a bit like taking letters from the Scrabble bag, as you cannot see what letters the pool contains.

Once a word is completed on the foreign language boards, a translation is offered and the game continues. The size of the boards can differ a lot so the time taken to play through will vary.

The game can be ended or reset at any stage and a number of extra features accessed. You can alter the rules and change the scoring procedures, add a speech facility – if you have 4th Dimension's Arcticulate – or simply change the fonts and colours of the boards on the screen. I found all of these features add to the value.

Building new files is a little tedious at present although we are assured that Brain Games are working on a full comprehensive screen designer. It requires the setting up and editing of given text files, which is not very simple unless editing a ready-made gameboard.

Graphically, Tiles is nice and easy to understand. The idea may take a while to grasp although it does offer among other items, an info box giving selected age ranges for people who should be able to complete the particular gameboard loaded.

Education is a field where it will fit nicely and children should have great fun puzzling the different boards. The addition of foreign languages will help both adults and children in getting to grips with new languages.

Overall, I think Tiles is best suited to adults and children who like challenges. You can play it on your own, but the fun really begins when there are more players. If you're one of those people who enjoy crosswords, Tiles is definitely for you.

Brett Colley

> Education is a field where it will fit nicely and children should have great fun

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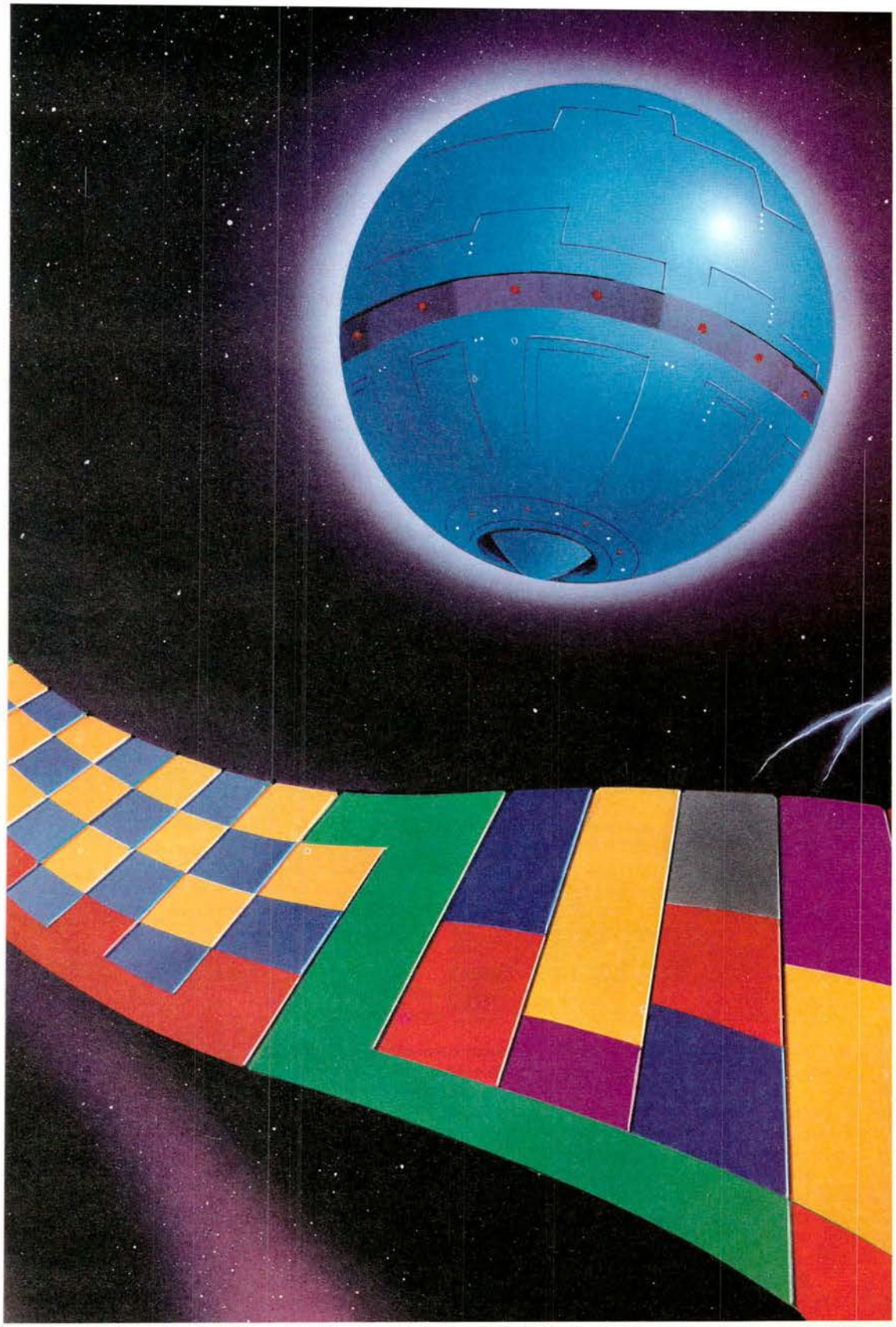

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The surface temperature of Fervour well over the range of your instrumen thus making oxygen retrieval ve difficult. After several days experimentation with oxygen retrieval y have come up with a spherical droid w as few moving parts as possible. It impossible for you to get near Ferve because of the sheer heat, thus you m control your droid via a high frequer microwave link.

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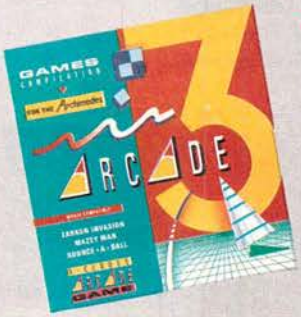

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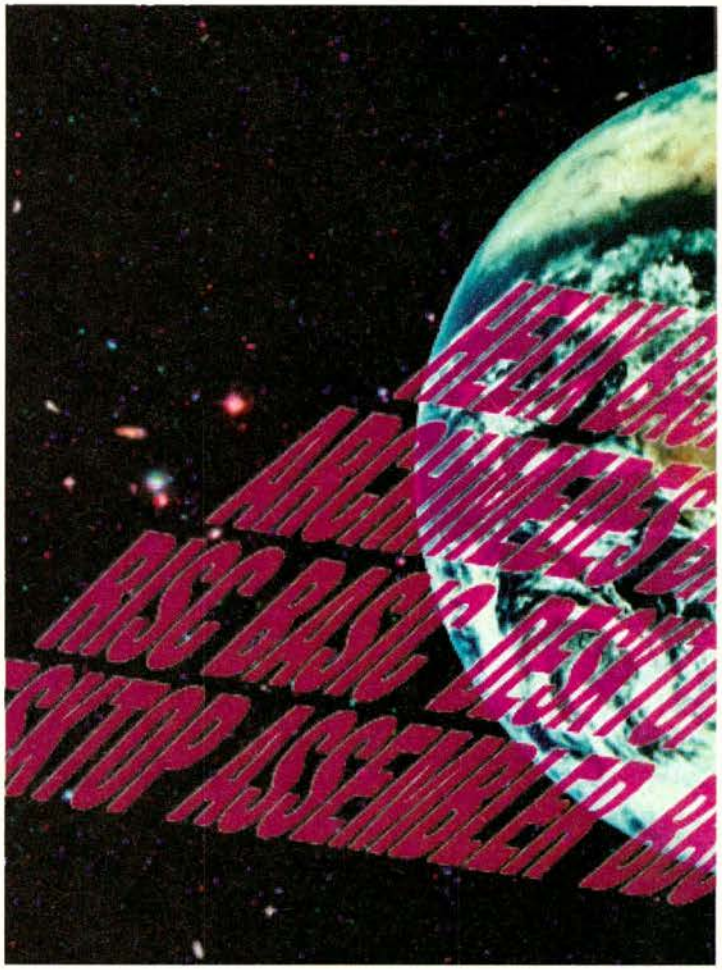

Steve Turnbull continues his analysis of the languages available for programming your Acorn 32-bit machine

PROGRAMMING languages are like football teams: They have dedicated fans who will tell you how great they are and gloss over the bad points. No programming language is good for every task and the wise programmer picks and chooses depending on his needs.

Unfortunately on the Acorn machines there's a problem – it multitasks. Now this is great for the user, he can run the programs he wants and have several of them all going at the same time, memory permitting.

But for the programmer it's a pain because it means lots more work building the Risc OS windows interface, and less attention to the problem of what the program is actually supposed to be doing.

Desktop C provides many facilities to make creating a multitasking program easier, and the experienced programmer is grateful for this.

But it's still a bind having to worry about updating colours, dragging icons from here to there, checking whether particular buttons are pressed or not, and so on.

For quick little utility programs Desktop C is just far too much trouble.

Of course BBC Basic is simpler and less restrictive. But it doesn't have all the ready-made routines for handling the Wimp, although you can write the routines yourself and put them in a library. You have to know a lot about Risc OS to be successful.

Coming in at the ground floor is HelixBasic, which takes just about every little Risc OS chore away from you. It's almost like writing single-tasking programs but when it's run it multitasks.

Once you get away from these three (and Assembler if you're adventurous) you're into unknown territory as far as multitasking is concerned. Criteria must be met for you to be able to write a multitasking program in a given language.

If the language is interpreted, like BBC Basic, the interpreter must be a module that sits in the relocatable module area (RMA) and the language itself must allow you to make SWI calls (directly or indirectly), otherwise you can't access the Wimp.

For compiled languages the only requirement is the ability to issue SWI calls which usually includes the ability to read and write values directly to memory. All languages have a style, and sometimes peeking and poking memory doesn't conform.

A little thought can easily get around this type of limitation but most language implementors don't think in terms of how their language can be made to multitask. It needs a certain state of mind and a dedication to the Acorn architecture, so it's rare.

Keylink Prolog – much to my surprise – does provide facilities to allocate blocks of memory and make SWI calls but at the expense of the language's style. And it's not a module-based interpreter so it's not as versatile as it might be.

I-APL, described last month, also ➤

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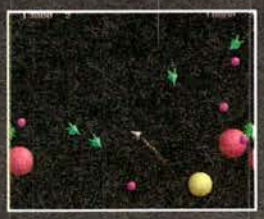

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Prolog

Price: £69.95 (single user) £350 (network)
Supplier: Keylink Computers, 2 Woodway House, Common Lane, Kenilworth, Warks CV8 2ES.
Tel: 0926 50909

PROLOG is a wonderful language to play with even at its simplest level and it's the first program that comes under my heading of *List* languages although it is far more restrictive in that area than something like Lisp itself.

Essentially Prolog creates and searches databases but the way it does it seems quite magical. For example you can create a database about cars just by entering information like this:

```
car(ford,fiesta,popular,uk,950,2,hatchback,5300).
car(alfa_romeo,sprint,veloce,italy,2000,2,coupe,12500).
car(blmc,metro,mg,uk,1300,2,hatchback,5700).
car(fiat,uno,70,italy,1050,4,hatchback,6500).
car(ford,orion,ghia,uk,1600,4,saloon,9500)
```

There's no programming required, it's all built in. Searching the database is very simple:

```
car(Manu,Name,_,_,1300,_,_,Price)
```

will find the first then any subsequent car which has an engine size of 1300, and display the contents of variables *Manu*, *Name* and *Price*.

The philosophy of the language is based on Success and Failure plus backtracking: When the request for information is received Prolog tries to match the query with the data. If it succeeds it displays the result but every time it fails it will backtrack to the last decision point and try another route.

This ability makes it ideal for goal-finding. For example given sufficient information about the contents of a room it can figure out how to put the chair on the table. This might not seem earth-shattering but because of this ability the result can be achieved much more easily than in other languages.

In addition you can easily build expert systems – especially using the MIKE software from the Open University. It took me about two hours to construct a simple *Problem Solved* type interface to resolve computer hardware problems.

Keylink Prolog is multitasking but can only handle one *document* at a time. There are facilities to add a sub-menu to the document window menu to activate commonly used commands.

The software is easy to install and use and the documentation is sufficient to get you started, although you'll need a good book on Prolog find out how to make the most of it.

It's Mike Cook in the machine

➤

gives access to SWIs but only via a machine code call which is not exactly friendly, and you don't get the ability to create independently running, multitasking applications that integrate with the rest of the Acorn world.

So it's horses for courses, but there are some races in which the currently available languages are just non-starters.

All we can do is hope for a wider choice.

Cambridge Pascal

Price: £99.95
Supplier: Oak Solutions, Suite 25, Robin Enterprise Centre, Leeds Rd, Idle, West Yorkshire BD10 GTE
Tel: 0274 620423

PASCAL was invented to teach structured programming and so contains all the necessary commands to make that easy. In fact it's so structured that it can sometimes feel like a straitjacket.

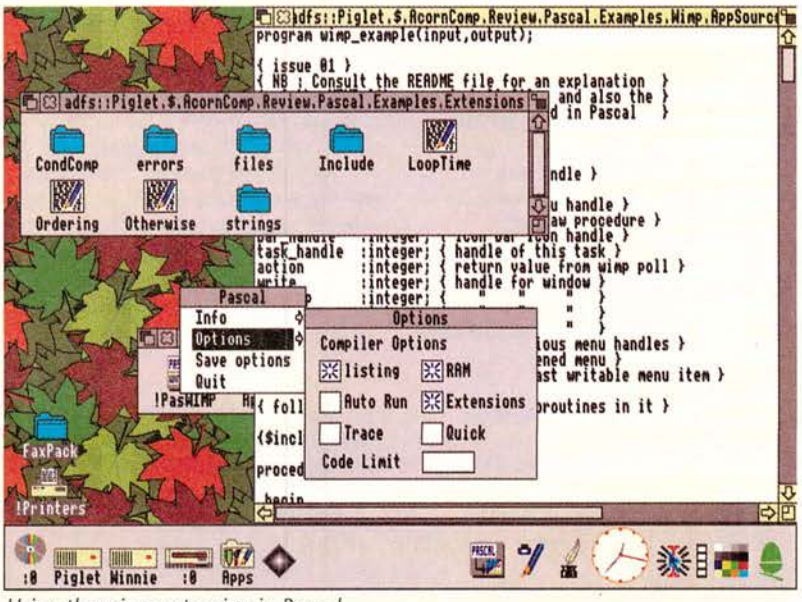
The original specification contains no facilities for handling strings – although you could have a fixed length array of characters. And you certainly can't access memory directly, the language was designed from the start to be as standard and as portable as possible.

But, of course, program implementors soon made a joke out of that. To be fair, the core of any Pascal implementation will be completely standard but because any external procedures or functions had to be declared in every program, the actual language is usually modified if particular sets of commands need to be included, destroying a program's portability.

For example if a particular machine had special graphics capabilities, like Acorn's machines, it was necessary to include a set of commands like *mode(n)*, *plot(k,x,y)* and so on.

Of course these have no meaning on a non-Acorn machine so any program using them is tied to one machine, and including them would mean that a whole new compiler would need to be written with the new commands.

The C language gets round this problem by not defining any standard functions in the language itself but including external files with clearly-defined functions. You can create new sets of library files so ➤



Using the wimp extension in Pascal

➤
special graphics functions can be designed and implemented on one machine then if the program is moved, a new set can be designed that does the same thing.

Pascal was designed as a teaching tool so the ability to include extra functions was not considered important. However it became very popular simply because it had such rigid constraints but the language extensions defeat the original intention.

The Cambridge Pascal compiler is a good implementation of the language but makes a point of not attempting to match the full standard – although the differences are minor.

There are extensions for graphics, strings, operating system access, file and error handling plus some functions for determining memory usage. An option in the compiler front-end disallows extensions and generates an error if they're found.

Because it's compiled and has the ability to send operating system commands Cambridge Pascal can be used to produce multitasking software. It requires two modules, CPCLib and ABCLib – the ABCLib gives away the fact that the Pascal compiler was written in BBC Basic and compiled using the ABC compiler.

Using compiler directives separate files can be included in the compilation and one set of procedures provided gives access to the Wimp. I personally felt that the interface could have been implemented more elegantly but it certainly works and that's the main thing.

Cambridge Pascal provides a good entry point if you want to learn what a real structured language is like and provides powerful facilities into the bargain.

● *Well we still haven't been able to cover Forth, SmallTalk or XLisp as yet so we'll be finishing up next month with a long look at these options.*

EdScheme special offer

Lambda Publications are offering discounts for all orders to them that mention seeing this review – £35 for software plus manual, and £15 for the Schemer's Guide. Cash with order only.

```
EdScheme Editor      Line 1   Col 1      INSERT      .FIDILIB
;;;
;;; Utility file: FUNCTION.S
;;;
;;; The following functions and macros are defined in this utility file:
;;;
;;; Element        Purpose
;;; ------------------------------------------------------------------
;;; memoize        Memoize a one-input function.
;;; freeze         Create a memoized delayed object.
;;; thaw           Force a memoized delayed object.
;;; curry          Curry a two-input function.
;;; uncurry        Uncurry a curried two-input function.
;;; compose        Compose two one-input functions functions.
;;; I              The identity function.
;;; timer          A timer for evaluations.
;;;
;;; (See also the utility file ENVIR.S.)
;;;
;;; This function memoizes a one-input function.  For example, we could
;;; define fib as follows:
;;;
;;;   (define fib
;;;     (memoize
```

The Edscheme program editor

EdScheme

Price: £45 (software & manual) £17.50 (Schemer's Guide).
Supplier: Lambda Publications, 194 Cheney Manor Road, The Green, Swindon, Wilts. SN2 2NZ
Tel: 0793 695296

THIS is another very nice package that unfortunately – in its present form – takes you away from the desktop.

A new version will be available very soon which is fully Risc OS compliant.

Another problem is that, in a similar way to I-APL, it uses a specialised form of display to achieve its ends.

Though not as exotic as I-APL's special characters EdScheme uses different coloured text – red and black – to indicate different states.

In fact EdScheme is a modernised version of Lisp, the original List Processing language and as such it has very few built-in functions but you build up the processes you need until finally reaching top-level function that invokes the entire program.

A list is composed of atoms and are represented like this:

```
(this is a list of atoms)
```

Each word in the brackets is an atom, the words plus the parentheses constitute the list. Functions can be applied to lists to alter them for example you can extract the first atom of the list:

```
(first '(a b c d))
a
```

Functions can be nested:

```
(first (rest '(a b c d)))
b
```

and defined:

```
(define second
  (lambda (r)
    (first (rest r))))
```

and then used just like a built-in function:

```
(second '(a b c d))
b
```

The software runs very fast despite being interpreted. In fact it is of the same semi-compiled form as Forth which I'll cover next time.

The tutorial manual that comes with the software is excellent, has plenty of examples and the style is clear. The Schemer's Guide is very thorough though rather less forgiving. It has a full description of the language and what you can do with it.

As an introduction to programming I wouldn't hesitate to recommend EdScheme but it's not designed for the Acorn machines so you can't create multitasking programs with it, which is a great shame.

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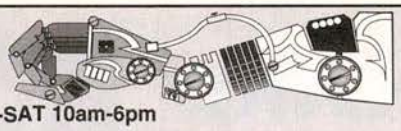

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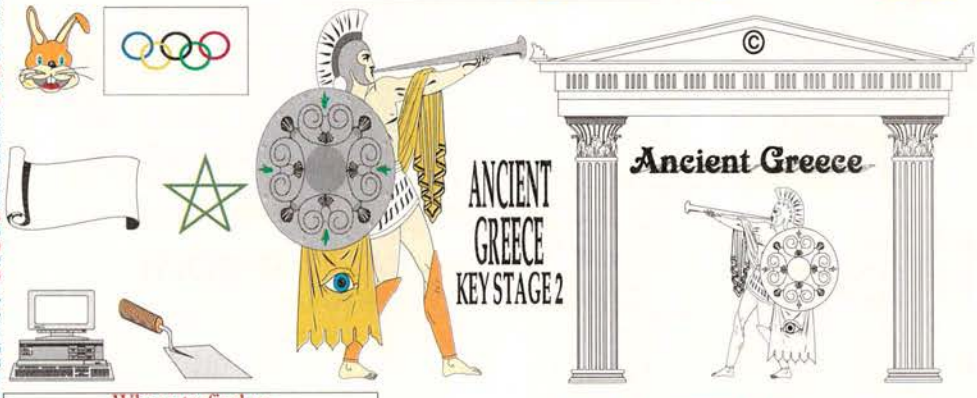
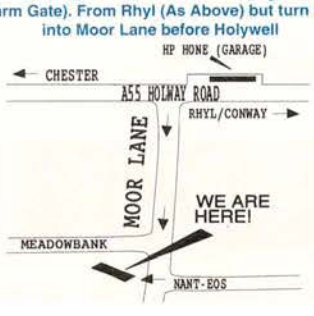


Where to find us

From Chester follow old A55 past Holywell until you see Moor Lane on your right, turn down Moor Lane, we are at the bottom (Big White Farm Gate). From Rhyl (As Above) but turn left into Moor Lane before Holywell



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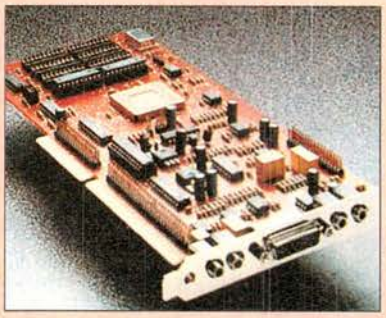

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Rom trouble

Mike Cook answers another section of your technical questions

I OWN a BBC Master which I have had for many years. Recently it has developed a problem with both of the cartridge slots. The problems can show themselves in a variety of different ways:

The computer fails to recognise that there is a cartridge plugged in altogether, fails to work when switched on or locks up suddenly, or it partly recognises the cartridge – it may show up on *ROMS but not on *HELP and the cartridge may or may not work.

The cartridges I use are the Master Smart Cartridge from Care Electronics and the AcornSoft OverView. Do you know what this problem is and how it can be solved? I know a little about electronics and would probably be able to obtain and replace any faulty components.

Also could you tell me if it is possible to take the two OverView roms out of their cartridge and put them into the sockets inside the computer? – **M. Clark, Oldland Common, Bristol.**

● *This problem is caused by intermittent contact in your cartridge system – always an easier fault to diagnose than cure. The fault is most likely to be in one of two places.*

First of all it could be the soldering of the cartridge holder to the main computer board. As cartridges are plugged in and out the movement can fracture the soldered joints causing an intermittent contact.

These fractures might be invisible but going over the joints with a soldering iron should cure them. However, only do this if you know how to wield a soldering iron.

Secondly the intermittent contact could be in the edge connectors themselves. Try swapping them about. Does one side give more trouble than the other? It could be that the contacts have built up a layer of grease, in which case a solvent-based switch cleaner should do the trick.

Always remember with this type of solvent to test a little on surrounding plastic before you douse your computer with it as you are liable to end up with a molten computer.

Finally it could be the spring contacts themselves loosing their springiness. Bending them back might cure it but it could be that you need a new socket.

I would suspect that the roms inside your cartridge are soldered in so would be difficult to place into the computer's sideways sockets. But if the software is written correctly it should run if you can fit the roms inside the machine.

Making room

I RECENTLY bought an Archimedes A310M with an Ifel 2Mb memory upgrade. With this system I also have an ST-506 20Mb hard disk controlled by an Acorn-fitted hard disk podule using ADFS 2.01.

When the computer was bought it came with a second ST-506 20Mb hard drive which was not installed. On looking inside the computer I can see on the hard disk controller that there is provision for another socket – p5 – which appears to be the same as p4.

The board is a Winchester Podule Issue 2 while the HDisk Pod Rom has the number 0276, 242-01 on it. Can you tell me what to do so that I can fit the second hard disk internally or externally?

My second question is about the new Risc OS 3.1 upgrade. As my machine originally ran Arthur and was converted to Risc OS 2.0 these chips are mounted in sockets in the main PCB and are two holes too long on each side.

I understand that this should enable me to fit the new operating system. The memory board states in its advertisement in Acorn Computing that *it has the option of larger OS roms*. I am uncertain which of the advertised upgrades I should buy. Do I need the hardware upgrade kit as well as the OS rom itself? – **Darran Ames, East Harptree, Bristol.**

● *While I am not intimately acquainted with your board, I see no reason why it should not control a*

➤

AGENDA

- Intermittent roms
- Adding a second hard drive
- Improving the sound
- Monitoring problems
- Bad memory upgrade
- Printer driving
- Fitting sideways ram

Lack of drive

I TAKE your magazine regularly and I know that you do your best to help people with technical problems. I hope that you can help me.

I work with children in a local primary school and we have been given a colour printer which we would like to use with an A3000. The printer has IBM 3852 on the front panel and looks exactly like an Integrex 132. We have tried using the Integrex printer driver but without success and Ace Computing lent us a Canon driver to try, but to no avail.

The Integrex Colour 132 advertisement used to carry a mention of their machine emulating the IBM 3852 and this is the only reference I can find.

Do you know if it is possible to run this printer from an A3000 and if so where do I get the relevant printer driver? – Patricia Leighton, Woollensbrook, Herts.

● If an Integrex can emulate a 3852 then it does not necessarily follow that a 3852 can emulate an Integrex.

Even it if can, you'll have a problem finding suitable driving software, as this was never a very popular printer in the Acorn world.

However, as you are a deserving cause it might be possible to persuade your local college or institute of higher education to get a student to write a printer driver for you as part of a project. There is often a pool of untapped expertise in these areas – so get phoning around.

You can write to Mike Cook c/o Acorn Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

He will answer any questions about difficulties you are having with your machines, mainly those to do with hardware. If you want a personal reply ensure that you enclose an SAE with your letter.

➤

second disk. Look at the rest of the board and if there are no other missing chips then by all means give it a go.

However, I would caution you to check the current capacity of your power supply first to make sure you are not overloading it.

Although the original A310s did have the number of holes in the board to fit the new operating system roms, the underside did not include the address tracking. Therefore, you need the hardware upgrade kit as well as the roms.

A sideways fit

I HAVE a 32k internal sideways ram card made by HCR Electronics which was fitted to a standard BBC B and used to work well. I would like to fit it in a BBC B+ with 64k.

Can this be connected to the B+ to operate in its original manner as I have several rom images on disk and am unable to load them? The B+ layout is different to a standard BBC B and I do not have a circuit for this computer and am unsure where to connect the lead which plugged into S21 and also the lead which clipped on to IC76 pin 11. – **Chris Whale, Heathfield, Sussex.**

● *The B+ was a bit of a stop-gap machine and not many were made. I feel very sorry for those who have them as many things will not work using them. As far as I know this applies to the sideways ram boards such as yours.*

It's not so much an electrical problem more a mechanical one. There was very little information released about them so there seems to be little expertise built up on these machines. I have heard of several pieces of software not running with them, and the problem was they were never around long enough for the developers to get to know them.

Incompatible monitors?

I USE my BBC B for wordprocessing using Inter-Word. When I had it connected to a Philips TV/computer monitor via the RGB socket I had no problems. Then I bought a Philips CM 8833-11 monitor for better resolution.

The menu screen – Mode 7, I assume – is fine. However, when I switch to the typing mode I get a rapid clicking sound at the back of the monitor and the picture becomes unsteady as if it is trying to move backwards and forwards.

I can just about put up with this but not for long. A dealer has told me that it is a common fault with some monitors that cannot cope properly with some modes.

Testing it with other programs it seems that only Mode 7 is unaffected. I am not sure about this though and I think it might be my computer as at times the problem does not occur. – **J.K. Ward, Newbury, Berkshire.**

● *A monitor that can't cope with Model B screen modes is rather like a TV set than can't stand watching Bruce Forsythe – well in fact that's a bit more probable. The problem is, in fact, your monitor and not your computer.*

If you describe the picture as appearing to go in and out while accompanied by a clicking noise it is almost certainly the HT – high tension or voltage – supply of the monitor.

You can get discharges across dirty or faulty components that cause both the noise and the picture changes. This monitor can be fixed by a competent TV engineer. Don't go back to the one who told you it's the monitor's design.

Making the right noises

I OWN a A310 and I think I have connected an amplifier up the wrong way to the earphone socket at the back because the sound output is rather poor and seems to break down at certain notes. As I don't have a circuit diagram of this section of the computer I am at a loss as to which components to test.

I seem to remember reading an article which said that the last stage was a filter of some kind and that a better quality sound signal could be got from tapping into the circuit before this filter. Could you please throw some light on this for me?

Finally I have Watford's ST506 hard drive interface and Computer Concepts' hand scanner. I am thinking of upgrading to an IDE or SCSI hard disk system. Is it feasible to connect both a hard disk and the hand scanner to a SCSI interface card – if so how? – **M. Buckland, Daventry, Northants.**

● *I doubt if you have damaged the sound output by connecting an amplifier round the wrong way. The worst that could happen is that you would get nothing out of it. However, some computers do seem better in the audio department than others.*

Looking at the circuit diagram of the 310 I see that the left and right filtered outputs appear on pins 3 and 7 of PL2 the auxiliary audio connector. On the same connector pins 9 and 1 have corresponding unfiltered audio lines.

However, be warned that the unfiltered line while giving a higher frequency output can also let through sampling noise especially when using a lot of sound channels.

Finally, it is possible to connect up to seven extra devices to a SCSI bus. Each should have an input and output socket and you simply chain on to another. Such peripheral devices are designed to plug into a SCSI system and will have some sort of switch to allow you to give it a unique identity number.

A sideways fit

MY problem concerns an Archimedes 420/1 which has been upgraded to a 4Mb machine. ProArtisan refuses to run correctly unless the system size has been reconfigured to 1024k. The standard factory setting of 32k causes the program to crash with the error *Abort on data transfer* ....

Several games also refuse to work such as Saloon Cars Deluxe and Chocks Away (version 2) even when Fourth Dimension's !LoadAider is used.

Again the system size setting of 1024k solves the problem. I have no additional hardware connected. Is this a hardware or software fault and what should I do to rectify this problem? – S.H. Stokes, Edwinstowe, Notts.

● ***This doesn't sound quite right. The system size setting is used to reserve system heap memory – the memory that the operating system can call on when it wants for storing things like stacks.***

It sounds like you might have a bad bit of memory in your upgrade and by setting the system size so large you are moving bad memory out of the way so that it is not used. I would contact your upgrade supplier and get him to test it for you.

ARM3 upgrade with floating point accelerator option

The first ARM3 upgrade to allow a floating point accelerator chip to be connected directly to the ARM3's 32-bit coprocessor bus. The 25MHz ARM3 itself increases the speed of your computer by a factor of at least 3, and sometimes even more. In addition the floating point chip speeds up maths operations previously emulated by software.

Other floating point units have the disadvantage of occupying a slot in the backplane. They are also either incompatible with ARM3 boards, or relatively slow due to the 16-bit backplane interface. This upgrade does not suffer from any of these disadvantages.

- ★ **ARM3 alone gives typical 3 to 4 times speed increase**
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- ★ **Fits A305, A310, A440, 400/1 series and the A3000**
- ★ **Fully compatible with other upgrades (memory, hard discs, RISC OS 3 etc)**

Installation is straightforward for all machines except the A3000, but a fitting service is available in all cases. Please note also that the A300 series and old A440 require the MEMC1a upgrade. Please write or phone for full details.

Our usual money-back guarantee applies to this product.

ARM3 introductory price - **£175**
MEMC1a - **£36** Floating point unit - **£ TBA**

ARM3+RISC OS 3 - £199

A3000 memory

An easy to fit and reliable RAM upgrade. 8-chip design for minimal power consumption. **Gold plated** connectors ensure long term reliability. No soldering needed.
2Mb RAM board (upgradable to 4Mb) - **£45**
4Mb RAM - **£110**
Bare board (without RAM chips) - **£25.50**

A3010/A3020/A4000 RAM

These machines may all be upgraded by easy to fit, plug-in components. No soldering is required.
A3020/A4000 extra 2Mb - **£70**
A3010 extra 1Mb (2Mb total) - **£40**
A3010 - **£424**. A3020 2MB FD - **£749**
A4000 - **£999**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee too. Please phone for details.

ARM3+RISC OS 3.10 combined package for £199

RISC OS 3.10

Acorn's new operating system for their range of RISC computers. The old version of RISC OS (2.00) is just 512K long, whereas OS 3.10 contains 2Mb of code.

Many applications which were previously supplied on disc are now contained in the OS ROMs. This includes improved versions of Draw, Paint and Edit. Because they are available on ROM they are always instantly accessible, and also occupy less RAM space.

Other features include extra "background" operations. For example, discs can now be formatted or files copied while the machine is used for other purposes.

RISC OS 3.10 may be used on the A305, A310, A440, 400/1 series, A3000, A540 etc.

Orders for RISC OS 3.10 are now being taken on a first-come first-served basis. Phone 0752 847286 for further details.

RISC OS 3.10 **£41.70**

A305, A310 and A440 owners please note. Although the ROM sockets inside your machine are large enough to accommodate the new ROMs, simply plugging in RISC OS 3.10 *will not work*. This problem is overcome by installing the RISC OS Carrier Board first. The RCB may be used with any version of RISC OS. This carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules").

RISC OS Carrier Board **£20**

A5000 systems & memory

A5000 with RISC OS 3, 40Mb hard disc, multisync monitor and ARM3. - **£1399**.
A5000 learning curve. - **£1445.**
Free 4Mb RAM upgrade included in the price.

2Mb memory board (4Mb total) - **£85**
A compact board measuring just 104mm by 49mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disc drive. Four-layer design as specified by Acorn. A bare board (ie without the RAM chips fitted) is also available.

Hard disc upgrades

A range of fast (17mS) SCSI hard discs with a two year warranty, in sizes from 52Mb upwards. Supplied with all metalwork and cables. 400/1 machines merely require the drive and SCSI card. 300 series require a backplane.
40Mb - **£POA** 85Mb - **£220**
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Oak 16 bit SCSI card - **£100**

Various

Aleph One 386 1Mb PC Card - **£390 (4Mb £475)**
Aleph One 486 1Mb PC Card - **£490 (4Mb £575)**
Impression 2 - **£130**

Free price list available upon request.
Prices exclude VAT.

A310 & A305 upgrade column

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

2Mb - £89 **4Mb - £145**

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and 3.10.

The use of only eight RAM chips ensures low power consumption. Compatible with ARM3 upgrades, backplanes, hard discs etc. This upgrade is supplied on just one, compact board measuring only 195mm by 40mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering. A copy of the fitting instructions is available free of charge.

A complete fitting service is available for our RAM boards covering courier collection, installation and testing, MEMC1a, return delivery and guarantee. This is normally a three-day service (eg, collected Monday, returned Wednesday). We have been upgrading 300 series computers for over three years, and during that time a reliability record second-to-none has been established.

Is there any other 300 series RAM upgrade wich has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

RISC OS Carrier Board **£20**
This is an easy to install adaptor board for the larger RISC OS 3 ROMs. A set of links on the board allows it to be used with RISC OS 2 and easily adapted for RISC OS 3 later. Suitable for use with the A305, A310 and A440. The adaptor has been fully tested with RISC OS version 2.00 and version 3.10. It is fully compatible with other hardware upgrades such as the RAM board described above, ARM3's, backplanes, VIDC enhancers and expansion cards.

4-slot backplane with fan **£57**

Combination deals

4Mb with MEMC1a, self-fit **£181**
Collection of your computer, installation of 4Mb of RAM, MEMC1a, and RISC OS Carrier Board, testing, full guarantee, and return delivery **£199**

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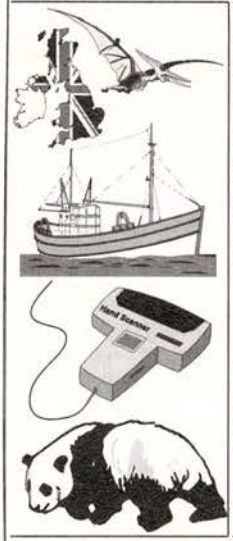

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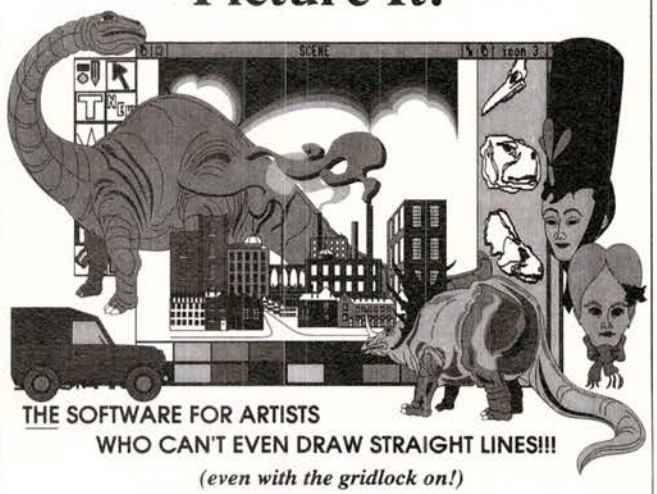

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Reader Survey...We want your opinions

Help improve the magazine and **WIN A £200 CASH REWARD**

IT'S now four months since we relaunched *The Micro User* as *Acorn Computing* and we'd like to hear what you think of the changes and what you'd like to see in the fastest growing Acorn-specific magazine?

The survey is designed to research your reading habits and purchasing plans. All the information you supply will remain strictly confidential at all times and will only be used in statistical tables.

Moreover, if you complete the survey and return to us by 1 March 1993 your name and address will be entered in our prize draw. The first one out of the sack will win £200 in cash while the next five winners can choose between a free year's subscription to *Acorn Computing* or £10 in cash.

Section one – All about you

Q1: How old are you?

☐ Under 15 ☐ 20-24 ☐ 35-44
☐ 15-19 ☐ 25-34 ☐ 45-54
☐ 55 and over

Q2: Are you male or female? ☐ Male ☐ Female

Q3: If you have children please indicate their ages

☐ Under 3 ☐ 8-10 ☐ 17-18
☐ 3-4 ☐ 11-13 ☐ Over 18
☐ 5-7 ☐ 14-16

Q4: What is your occupational status?

☐ Employed ☐ Self-Employed ☐ Unemployed
☐ Student ☐ Retired ☐ Other

Section two: All about your computer

Q5: Which of the following types of Acorn machine do you use? (Tick all that apply).

☐ BBC A/B/B+ ☐ Master 128/512/Compact
☐ Electron ☐ A3000, A310, A400 series
☐ A540 ☐ R Series (Unix)
☐ A3010/3020, A4000 ☐ A5000
☐ A4 ☐ PocketBook

Q6: Which operating system do you use?

☐ Arthur ☐ Risc OS 2
☐ Risc OS 3.0 ☐ Risc OS 3.1

Q7: If you do not have Risc OS 3.1 do you intend to upgrade in the near future?

☐ Yes ☐ No

Q8: What hardware have you got?

Processor:

☐ ARM 2 ☐ ARM 250 ☐ ARM 3

Ram:

☐ 1Mb ☐ 2Mb ☐ 4Mb ☐ 8Mb ☐ 16Mb

Hard disk

☐ ADFS ☐ IDE ☐ SCSI

Capacity of hard disk . . . . . Mb

Monitor

☐ TV ☐ Standard
☐ Multi-sync ☐ Other . . . . . .

Printer:

☐ Dot matrix ☐ InkJet/Bubblejet
☐ LaserJet ☐ Plotter
☐ Other . . . . . .

Misc:

☐ Digitiser ☐ Scanner ☐ CD-Rom
☐ FaxCard ☐ PC Card ☐ Modem
☐ MIDI ☐ Other . . . . . .

Q9: Where do you use your computer?

☐ At home ☐ In education ☐ In business
☐ In medicine ☐ While travelling ☐ At work
☐ Other . . . . . .

Q10: How long have you used your current computer?

☐ Less than one year ☐ Up to two years
☐ Up to three years ☐ Up to four years
☐ Up to five years ☐ Over five years

Q11: Who in your household uses the computer? (Tick all that apply.)

☐ Self ☐ Partner
☐ Children under 11 ☐ Children over 11
☐ Other . . . . . .

Q12: What other machines do you use or plan to buy in the next year? (Tick all that apply)

	Already use	Plan to buy
8-bit BBC Micro	☐	☐
32-bit Acorn	☐	☐
IBM PC or compatible	☐	☐
Games machine (Sega/Nintendo)	☐	☐
Amiga	☐	☐
ST	☐	☐
Apple Macintosh	☐	☐

Other . . . . . .

Section three: All the disks

Q13: What did you think of the programs from the *Acorn Computing* cover disks?

	Good	Average	Poor	Didn't see
Ego:Repton 4	☐	☐	☐	☐
Badger Trails	☐	☐	☐	☐
MicroTrader	☐	☐	☐	☐
Populous	☐	☐	☐	☐
Cadet	☐	☐	☐	☐
Imagery	☐	☐	☐	☐
Spheres of Chaos	☐	☐	☐	☐
Fervour	☐	☐	☐	☐
BookMaker	☐	☐	☐	☐
Sound FX Maker	☐	☐	☐	☐
Frontier 2000	☐	☐	☐	☐
Titler	☐	☐	☐	☐
Guile	☐	☐	☐	☐
Image Animator	☐	☐	☐	☐

Q14: Subscribers with 32-bit machines receive both cover and subscription disks. The cost of the 8-bit subscription is lower but only one disk or tape is supplied.

My subscription is: ☐ None ☐ 8-bit ☐ 32-bit

If you subscribe what do you think of the programs from *Acorn Computing* subscription disks?

	Good	Average	Poor	Didn't see
Magazine listings	☐	☐	☐	☐
PD software	☐	☐	☐	☐

Q15: What would you like to see on the subscription and cover disks in order of preference (1 favourite, 6 least favourite)?

	Cover disk	Subscription disk
Non-commercial software	☐	☐
Public domain/shareware	☐	☐
Limited but usable commercial software	☐	☐
Demos of commercial programs	☐	☐
Fully working but old versions of commercial software	☐	☐
Other		

Q16: What subjects would you like covered on the cover disk (1 favourite, 6 least favourite)?

☐ Games ☐ Education ☐ DTP
☐ Utilities ☐ Programming ☐ Other . . . . . .

Q17: Do you have access to a high density disk drive – can your computer read 1.6Mb disks? ☐ Yes ☐ No

Section four: About the magazine

Q18: How would you describe the coverage of topics in the following magazines?

Acorn Computing

	Too much	Just right	Too little	Don't know
Games	☐	☐	☐	☐
Education	☐	☐	☐	☐
Programming	☐	☐	☐	☐
Reader enquires	☐	☐	☐	☐
News	☐	☐	☐	☐
Software reviews	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐
Tutorials	☐	☐	☐	☐

Acorn User

	Too much	Just right	Too little	Don't know
Games	☐	☐	☐	☐
Education	☐	☐	☐	☐
Programming	☐	☐	☐	☐
Reader enquires	☐	☐	☐	☐
News	☐	☐	☐	☐
Software reviews	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐
Tutorials	☐	☐	☐	☐

Archimedes World

	Too much	Just right	Too little	Don't know
Games	☐	☐	☐	☐
Education	☐	☐	☐	☐
Programming	☐	☐	☐	☐
Reader enquires	☐	☐	☐	☐
News	☐	☐	☐	☐
Software reviews	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐
Tutorials	☐	☐	☐	☐

Risc User

	Too much	Just right	Too little	Don't know
Games	☐	☐	☐	☐
Education	☐	☐	☐	☐
Programming	☐	☐	☐	☐
Reader enquires	☐	☐	☐	☐
News	☐	☐	☐	☐
Software reviews	☐	☐	☐	☐
Hardware reviews	☐	☐	☐	☐
Tutorials	☐	☐	☐	☐

Q19: With regards to the content of a magazine how important are the following to you ?

	Very	Quite	Not very	Not at all
Detailed hardware reviews	☐	☐	☐	☐
Detailed software reviews	☐	☐	☐	☐
Soft/hardware comparisons	☐	☐	☐	☐
Games/leisure software	☐	☐	☐	☐
Short reviews	☐	☐	☐	☐
Software roundups	☐	☐	☐	☐
Education	☐	☐	☐	☐
Tutorials	☐	☐	☐	☐
Programming	☐	☐	☐	☐
News	☐	☐	☐	☐
Letters	☐	☐	☐	☐
Body Building	☐	☐	☐	☐
Technical hints and tips	☐	☐	☐	☐
Others	☐	☐	☐	☐

Q20: How important are the following factors in your decision to purchase software and hardware?

	Very	Quite	Not very	Not at all
Reputation of producer	☐	☐	☐	☐
Reviews	☐	☐	☐	☐
Price	☐	☐	☐	☐
Advertisements	☐	☐	☐	☐

Q21: Which magazines do you read?

	Almost always	Quite often	Only occasionally
Acorn Computing	☐	☐	☐
Acorn User	☐	☐	☐
Archimedes World	☐	☐	☐
Risc User	☐	☐	☐
Archive	☐	☐	☐
Others	☐	☐	☐

Q22: How do you obtain your copy of *Acorn Computing*?

☐ Newsagent ☐ Subscription ☐ Colleague

Q23: Which topics would you like to see covered in *Acorn Computing* in the next 12 months? Please tick all that apply.

☐ Spreadsheets ☐ Wordprocessors
☐ Databases ☐ Accounts
☐ Desktop publishing ☐ Education
☐ Games ☐ Graphics/art
☐ Music ☐ Programming languages
☐ Utilities ☐ Other . . . . . .

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Break the following code to make an appropriate phrase:
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.....

Thank you for completing this survey. Please return it to:
Sirje Green, Acorn Computing, Europa House, Adlington Park Macclesfield SK10 4NP

Tidy desks and chaotic minds

If you're suffering from that February feeling, Teri Paul will raise your spirits with some public domain applications

IF YOUR New Year resolution was to make life more organised you'll need a calendar. The design is up to you but it would be nice to create a range of calendars which could be updated from year to year. A PD utility called Calendar – what a name – creates such *aide memoires* using Computer Concept's Impulse II protocol and Impression.

Written by Dale Cass, the copy I received from APDL contained three example calendars each containing Impression merge commands to request specific information such as the year, month, week or day.

To create your own calendar drag one of the templates on to the main window or calendar icon on the iconbar. The full pathname of the file will appear in the icon in the centre of the main window. The Create button will start the merge operation with Impression.

You can then print your calendar or keep the result to edit at a later date. The Use Start/End Month button is used when you have a template document containing Merge commands for only one or two months, and you want to use that document as a template for a range of months shown in the Start Month and End Month icons at the top of the window.

Calendar is a useful utility for anyone with Impression and a technically interesting one for anyone who'd like to look closely at the mechanics of the Impulse message system, as full details are given in the accompanying help file.

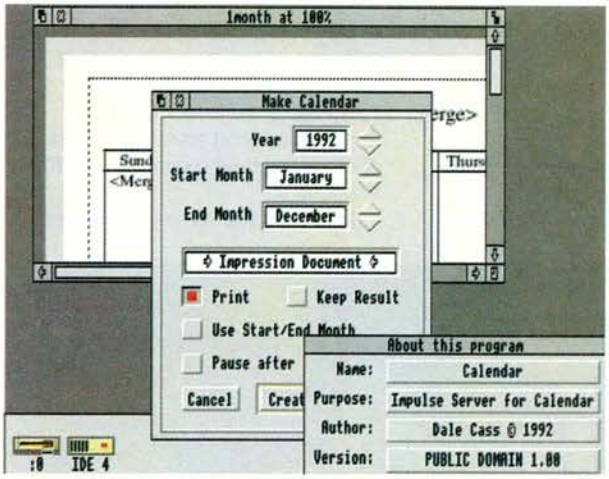
Tidy minds, tidy desks?

Mike Curnow of fractal fame has written a desktop window manager called !**TidyDesk**, designed to provide extra control over the desktop. It provides two menus and some keyboard short cuts which help you control windows with the normal operation of the desktop unaffected.

By pressing Alt+Menu with the pointer over a window, a menu opens showing the name of the window owner in the title. This menu allows you to bring the window to the front, put it to the back, make it as large or as small as possible, close it and shut the task whose window you are in.

With Control+Menu you'll open a menu providing control over all open windows. A further sub-menu operates the same as Alt+Menu. Clicking on the window name brings that window to the top, so you can cycle through the windows.

You can also *tidy* your windows. This lets you see them all and the icon bar. You can choose to have them displayed on top of one another with just the title bars showing or if you prefer you can arrange the windows across the ➤



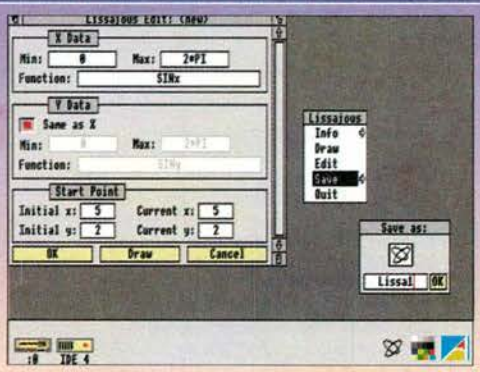
● *Ring the changes using the Impulse system*

Lissajous curves: Patterns from sines and cosines

Anyone interested in fractals will know that Mike Curnow's !Fractal program takes some beating. It was featured some months ago, but Mike has also written a Lissajous Function Plotter called !Lissajous.

For anyone unfamiliar with this process, Lissajous curves were investigated by the man of the same name in 1857 and are mostly seen in oscilloscope displays. Basically the curves are the graphed result of a function of sine or cosine.

The variety of displays are produced by plotting different x and y values against each other.



● *Sines and cosines were never so interesting*

!Lissajous is a desktop application which lets you try different functions and control the plotting. The resulting functions can be saved and used within another of Mike's applications !TidyDesk described above. You create curves by selecting draw from the menu. As the curve is being plotted you use various keys to increase and decrease the x and y plots.

Further editing can be done in Edit mode which gives you control over the source numbers and function for the x and y axes as well as their start points.

Values can be given as simple numbers or using Basic's standard functions. The resulting value of the function you enter is used as the value of the x/y plots. Typically functions are based on SIN and COS, but others can be used.

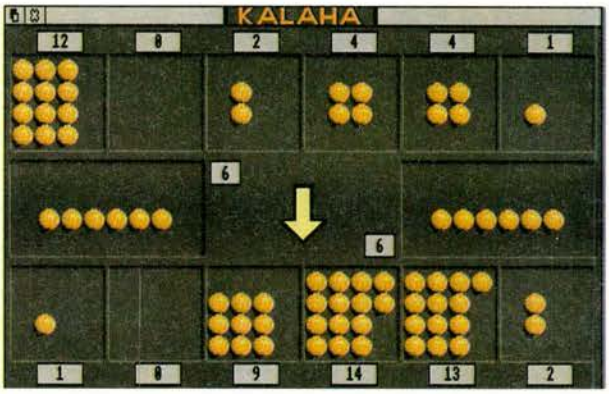
You can extend the program in several ways which are covered in the comprehensive help file. For instance, you could plot more that the default 256, or use the same function data but different x and y index points to plot at different phases.

desktop. !TidyDesk also has a screen blanker built in. There are a number of screen blankers around but Mike has incorporated Lissajous graphics. The plots come from the !Lissajous application.

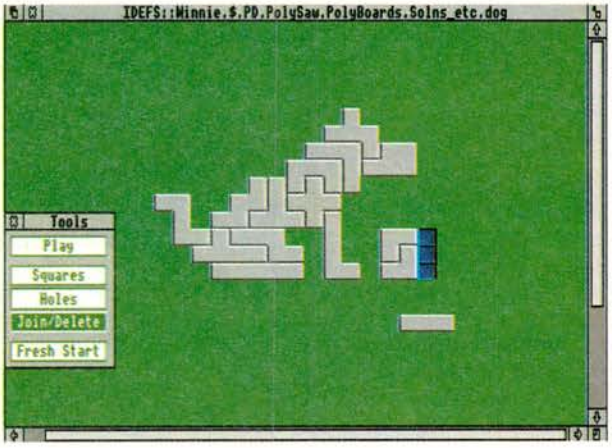
Different patterns may be used by double-clicking on a figure file created by !Lissajous, or by using the command *TidyDesk_Load . This command could be added as the penultimate line of the !TidyDesk !Run file to permanently set the Lissajous plot.

!TidyDesk is a useful application to have on a system and has many little extras programmed into it such as the long double click. Holding down Select over an application icon after a previous click opens its directory rather than running it.

If you do the same operation on a file, it attempts to load it. Basic programs are loaded, sprites are *Screenloaded and if there is an Alias$@LoadType_xxx set for the file, then the file is *Loaded. If none of the above are appropriate the file is loaded into Edit.



● *The forerunner of Backgammon?*



● *Jigsaws can be as complicated as your mind allows*

Taxing the little grey cells

Fed up of random violence? Why not give your logic circuits a bit of an overhaul with two games from Graham Jones. One which has stood the test of time in its hard-copy version is **Kalaha** – it has reportedly been played for over 7,000 years.

The idea is simple, the strategy not. The basic rules involve 14 hollows, each player having six small ones holding his stones and one large one to claim the stones he has acquired.

You make a move by choosing one of the six hollows in front of you that contains some stones. These are then distributed in anti-clockwise manner, one per hollow – missing out the opponent's big hollow should they get that far.

Where the last of these is placed is important, because if the last stone to be put down is in your own big hollow, you get an extra go – and continue getting extra goes until you miss your big hollow.

Bonus stones are awarded. If the last stone is put in one of the hollows in front of you that was previously empty, that stone plus any in the small hollow opposite become yours. With me so far?

The game ends when one player's six hollows are all empty and any stones remaining in the opposite six hollows become the property of the player who made the last move.

From the same author comes a jig-saw type game called **PolySaw**. There are some ready-created puzzles as well as the ability to create more or less complicated teasers.

After you have loaded the game and dragged the board you want on to the window, various blue and grey shapes will appear on screen. You must then fit the grey Polymos into the blue.

The various combinations can be rotated by selecting a corner of the shape or flipped by clicking on them with Adjust or just dragged on to the part of the puzzle you think the most appropriate.

You can save a board at any stage and a built-in editor allows you to design new boards.

When you have designed the board, click on Play in the tools window to try it out. The only limitations are a maximum of 40 Polymos with up to 20 squares each and your imagination. If you like either of these games Graham asks for a donation to be made to Oxfam.

PD LIBRARIES

8-BIT HOUSES

8-bit Software, 1 Oakwood Drive, Heaton, Bolton BL1 5EE.
BBC PD,18 Carlton Close, Blackrod, Bolton BL6 5DL.
Elk PD, 5 Edward Street, Clifton, Brighouse, Yorkshire HG6 1QR.
Frisky Clams, 37 Cassiobury Drive, Watford, Herts WD1 3AA.
GLM PD, 2 Pierrefondes Avenue, Farnborough, Hampshire GU14 8NF.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
JJF PD, 49 Hollberry Close, Wingates Green, Redditch, Worcester B98 0QT.
Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
MasterDisc, 2 Seaview, Hoylake L47 2DD.
ScreenTeach, 21 Highlands Road, Rochdale, Lancashire.
The Wizard - BBC, Ryburn, Thorpe Lane, Cawood, Selby, North Yorkshire YO8 0SQ.
Welsh Boys PD, 88 Queen Street, Barry, South Glamorgan CF6 8EE.
The Yorkshire Boys, 40 Spotswood Place, Gleadless, Sheffield S14 1LE.

32-BIT HOUSES

Abyss Software, 35 Grantley Crescent, Kingswinford, Valley Fields, West Mids DY6 9EH.
Alpine PD, PO Box 25, Craigavon, BT63 5UT.
Arcaynia, PO BOX 1927, Sutton Coldfield B74 3YZ.
ArchAngel, 9 Chancel Court, Chancel Lane, Pinhoe, Exeter EX4 8QE.
Arch PD, 109 Ferry Road, Hullbridge, Hockley, Essex SS5 6EL.
ARMistic, 136 Wellesley Road, Ilford, Essex IG1 4LJ.
Busy Bee Computers, PO Box 25, Ormskirk, Lancashire L39 3QR.
Cream PD, 38 Baunton, Cirencester, Gloscester GL7 7BB.
Datafile PD, 22 Duxford Drive, Aldergrove, County Antrim, Northern Ireland BT29 4BG.
DataStream, 34 Norbreck Close, Great Sankey, Warrington, Cheshire WA5 2SX.
Diamond PD, 86 Meadowbank, Moor Lane, Holway, Holywell, Clwyd CH8 7EF.
Different Ideas Music, 48 Merthyr Road, Dallington, Northants NN5 7BS.
Digital Illusions, 20 College Road, Wembley, Middlesex HA9 8RL.
Digital Phenomena, 104 Manners Road, Southsea, Hants PO4 0BG.
DigiTech PD, 20 Downing Crescent, Bottesfird, Scunthorpe, South Humberside DN16 3LS.
Equinox PD, 27 Station Road, Earls Barton, Northampton NN6 0NT.
Five Star Marketing, 18 Woburn Close, Bushey, Herts WD2 3XA.
Genesis PD, 19 The Greenway, Hillfields, Bristol BS16 4HB.
HeadFirst PD, 97 Chester Road, Southport PR9 7HH.
I-APL, 11 Auburn Road, Redland, Bristol BS6 6LS.
Kinsway Computer Services, 72 Glencoe Road, Sheffield S2 2SR.
Low Cost PD, 6 Furzeland House, Sheephouse Way, New Malden, Surrey KT3 5PH.
Mad Rabbit PD, 174 Duke Street, Southport, Merseyside PR8 5EL.
Matt Browne PD, 5 Inglefield, Pottres Bar, Herts EN6 1HD.
Moonlight Graphics – Shareware, PO Box 3569, Cape Town 8000, South Africa.
Naked PD, Fayence, Fulford Road, Fulford, Stoke-on-Trent ST11 9QT.
Ozone-Friendly PD, 180 Cumnor Hill, Oxford OX2 9PJ.
Power to the Programmers, 1st Floor, 23 Cooper Street, Nelson, Lancashire BB9 7XW.
Risc PD, Potteries House, Rannoch School, By Pitlochry, Perthshire PH17 2QQ.
RML PD, 24 Penryn Close, Norwich NR4 7LY.
Skyfall, PO Box 2220, Birmingham B43 5R2.
Spidersoft PD, 218 Saville Park Road, Halifax, West Yorkshire HX1 2XS.
Westbourn Services, Westbourne House, 34 Bradley Street, Wooton-under-Edge GL12 6AR.

Designs on living

What has Minerva's new computer aided design package on offer? Steve Bruntlett investigates

THERE have been other CAD packages from the early single-tasking ones – taking up the whole of the Arc's working area at the expense of multi-tasking packages – to the professional-looking packages modelled on industry-based CAD systems with lots of complicated and very sophisticated operations.

CADet is a very usable and friendly but that's not to say that it doesn't have a wide range of sophisticated tools because it has. Its whole feel is one of a cross between DrawPlus and Impression but extended into a full CAD package.

It's very easy to use and builds on conventions developed in the best of the current Risc OS packages including some novel but very useful, features such as dialogue boxes which can be pinned to the background to avoid repeated selection from the menus.

CADet is designed for educational use though it may be equally appropriate for anyone in business or industry with general technical drawing requirements.

It goes beyond the general type of CAD package previously available as it offers mapping and architectural area fills which takes it into much more useful territory in terms of cross-curricular education.

For example, it would seem to have ready made uses for any kind of interior design work and for planning and map making in Geography and Environmental studies.

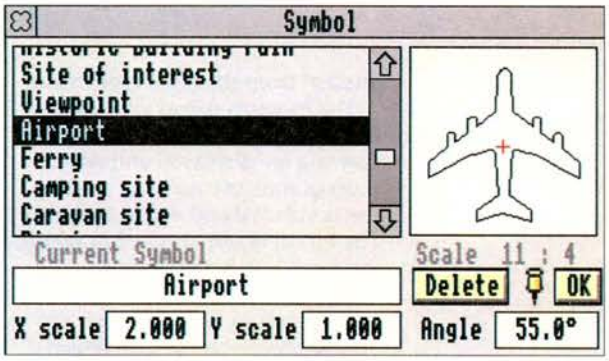
One of the important points to make about CADet is that most of its options are user-definable and are rarely restricted in use. This gives you much more control rather than allowing the package to dictate the style of drawing.

You can operate from a toolbox, from menus or via keyboard shortcuts. The program's message system also gives you clear guidance on drawing procedures. The range of drawing aids, such as the pinnable dialogue boxes and the Snap system, reinforce the flexible and intuitive nature of CADet which make it a pleasure to use.

Let's pick up on one of the options and see the way it makes life easier: You can save the Zoom positions tailored to a particular screen layout with a user-defined name so that you can save the setting as Fullscreen rather than having to remember the numerical setting of 4:5 or whatever.

This is not only very useful and well thought out but it is also indicative of the thought that has gone into development and also of developing examples of good practice from other programs, such as tear-off menus.

The manual is excellent and includes – like most top quality Risc OS programs – sections of general information and a tutorial. This takes you through an exercise demonstrating many of the techniques needed to produce a good quality drawing and finishes with a reference section. A few more step-by-step illustrations in the tutorial would have been useful but it's straightforward enough.



● *CADet has a lot on offer for those involved in environmental or geographical studies*

The curve and line tools operate in a similar way to Draw with open and closed options. They are also edited in a similar way. The rectangle, circle and polygon can be constructed in a number of different ways as you would expect.

The arc is similar but with definable settings if you're using the Centre Radius mode of operation. The Symbol library is easy to use and is similar to the one in DrawPlus except that you can set the X:Y scale and angle at which the selection is drawn.

Text can be justified and angles selected from its dialogue box but these can be changed in terms of font, size, colour, italic or justification from the Style type menu available from the Status Bar at the top of the drawing window.

To try and clarify the information system of CADet there is the orange Message Bar which is independent of the drawing window, and the Status Bar, also independent and shows the snap selections and the absolute, relative or polar positions of the cursor.

Across the top of the drawing window is an icon indicating which tool, pen, line and layer you're using or in the case of text the line is replaced by the font currently in use. The pen, lines or layers can be cycled through with adjust or

● *The SnapBox enhances the usual snap-to-grid options*

PRODUCT SPOTLIGHT

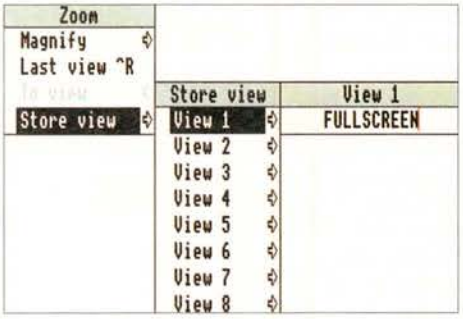
Product: CADet
Price: £149
Supplier: Minerva Software, Minerva House, Baring Crescent, Exeter EX1 1TL.
Tel: 0392 437756

selected from the Style type menu.

The Prompts menu gives you control over which of these aids to drawing are displayed and what units of measurement are used by the horizontal and vertical rulers. The Prompts can also be brought to the front if they get lost on a cluttered desktop.

The Toolbox is also in an independent vertical strip which can be moved to any working position. You can select options from the CADet menu or from the Toolbox directly with all dialogue boxes available with Adjust. This attention to detail in terms of working procedure is highly commendable and works well.

Someone who has already used DrawPlus would have no problem using CADet. Those new to the package would find the learning curve easy to follow as well as being struck by the straightforward way in which it operates and the speed of operation.



● *You can save zoom positions specifically tailored for drawings*

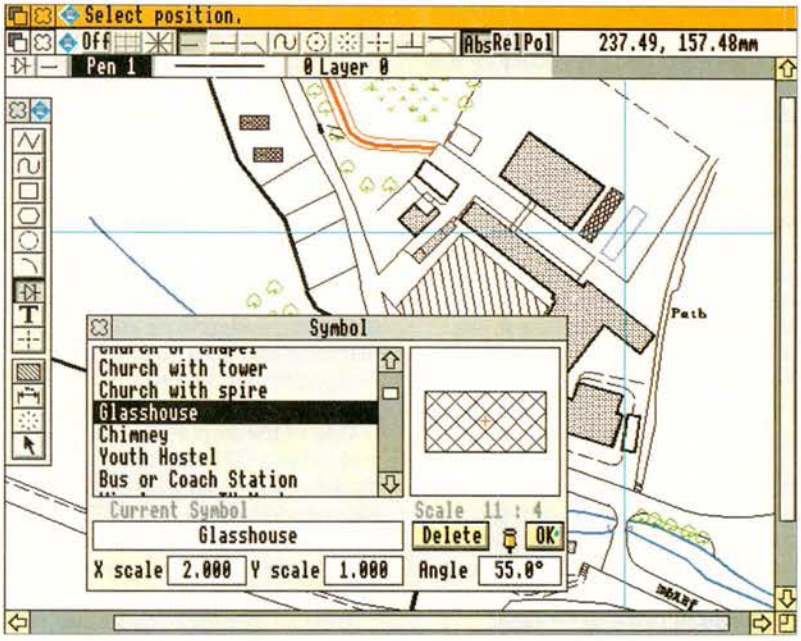
The Snapbox is another of the features which makes this package so easy to use. It's similar to the normal kind of snap-to-grid option but is much more versatile in that it can be used to snap to a grid point, to an end or mid point, to a bend, object or centre point to a Quadrant or perpendicular or at a tangent to an object.

This may sound complicated but if you've ever used a CAD package you'll know how tricky it can be to draw or move a line at right angles to a curved line or ellipse or to get a line touching a circle at a tangent.

The second section of tools in the Toolbox starts with the area fill which works in the same way as the Symbol tool in that a wide range of fills can be resized and used at any angle. This feature is very impressive as it includes a whole range of Ordnance Survey symbols for map makers.

Automatic dimensioning to three decimal places is included as is a Circular Copy facility which will place between 2 and 100 copies of an object in a circle. Not only can single objects be used but grouped objects, opening up possibilities for the production of extremely complex designs. The final tool is Select which allows you to select an object or objects for movement around the screen.

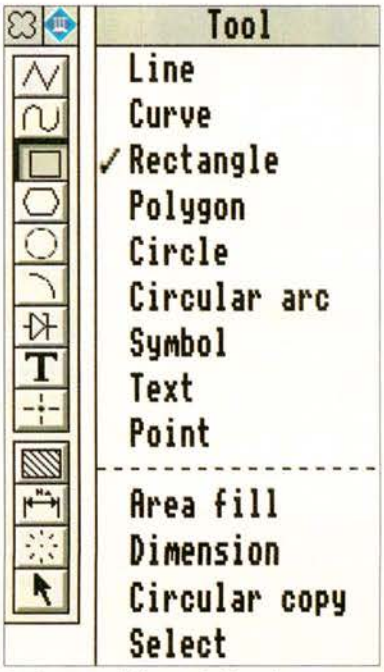
That's just the Toolbox – there are many more options such as the Undo/Redo facility which allows you to go back to any stage of your drawing and carry on from there or if you change your mind, carry on from where you were. The Select menu is seemingly endless in the range of very useful facilities.



● *CADet doesn't restrict the use or applications to which it can be put*

Summing up

CADet is aimed at education and business. But it will have many uses at home, especially for frustrated designers who have gone so far with Draw or DrawPlus but need something which will operate at at a higher technical level for producing plans for an extension or for those who need to produce accurate plans and maps for anything from Geography or Design homework to fighting the development of a proposed ring-road.



● *Curve and line tools function is a way similar to DrawPlus*

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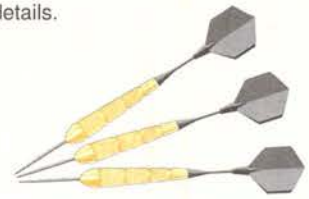

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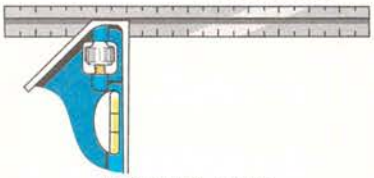

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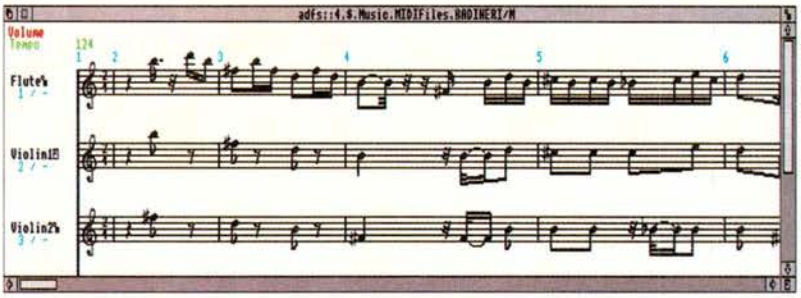
Digital interfa

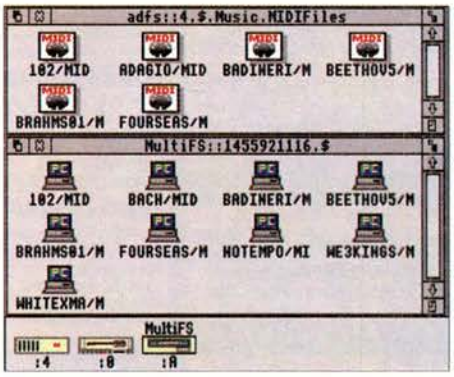
ONE of the great things about music programs is the ability to examine the music you play, interact with it and edit it. You aren't stuck with a fixed recording as you are with music on CD or cassette.

Most sequencers and music programs store music data in their own individual format. This lets them use special functions such as loops, a notepad area or formatting instructions which other programs may not have.

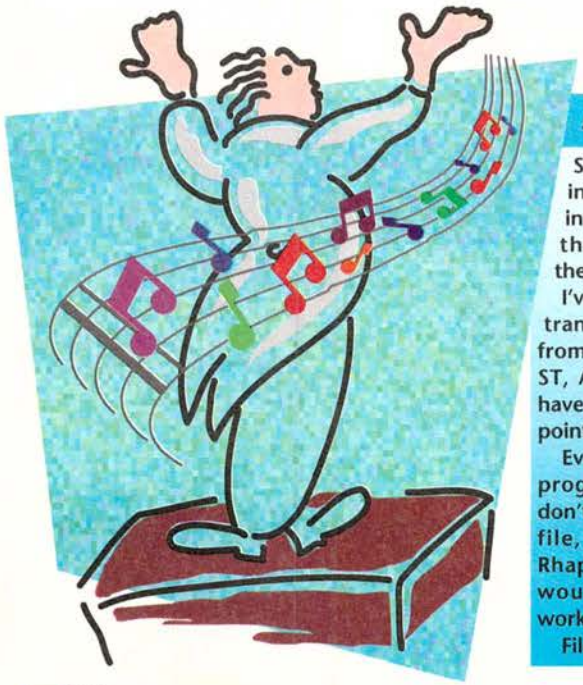
However, this also means you cannot load music which has been created with a different program or share music with others unless you all use the same program.

Some time ago, software developers realised that this was a problem and hit upon the idea of a standard file format which would allow files to be ported from one program to another. Most sequencers now support Standard Midi Files, including the budget-priced Rhapsody, and SMF is Inspiration's native file format.

In theory, you should be able to load a Standard Midi File created by any program into any other program – that supports SMF, of course. This means you should be able to load music files created on STs, Amigas, PCs or Macs into your Arc. It gives you a wide range of

● *A Midi file of Bach's Badineri as it appears in Rhapsody. Some of the notes don't look correct which is due to imprecise quantisation in the original file – but it plays fine*



● *You can copy Midi files from an MS-Dos disk to the Arc using MultiFS. The Midi files in the upper window have been given a Midi File Type and the icons belong to Inspiration*



All together now...

Standard Midi files are an excellent idea in theory. And they'd be quite excellent in practice if they were handled in exactly the same way by all sequencers. But they're not.

I've spent a considerable amount of time transferring Midi files to the Archimedes from sequencers on all other computers – ST, Amiga, Mac and PC – and the results have been surprising and often quite disappointing.

Even though the 32-bit range has very few programs which support Midi files, they don't all handle them in the same way. One file, ported from the ST loaded into Rhapsody but not Inspiration. Some files wouldn't load into either program yet worked perfectly on other computers.

Files saved by Inspiration loaded fine into some ST sequencers but not into others. Some simply loaded the first track and repeated it several times down the track list.

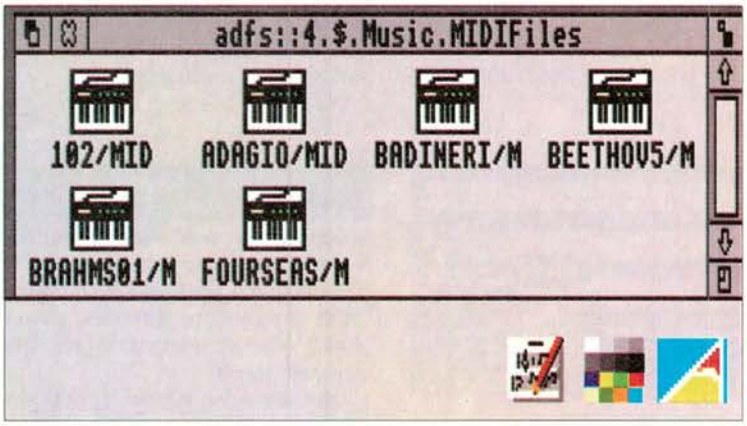
This problem isn't limited to the Arc. On the Mac, for example, some so-called Midi files would only load into the program which created them.

Others caused certain sequencers to lock up. These problems occur with new, top-of-the-range sequencers, not just old ones or budget programs.

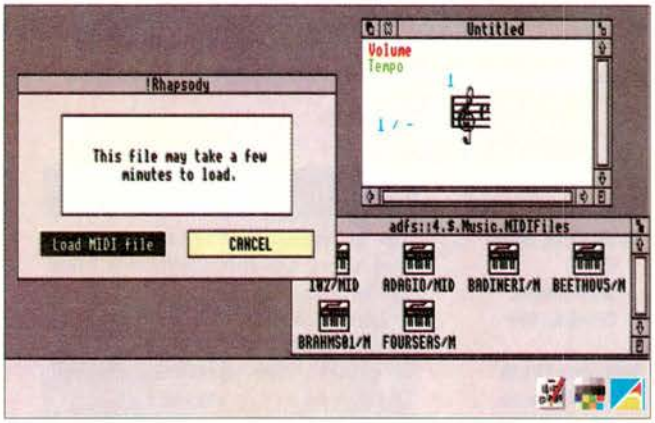
The truth is, Standard Midi Files are not as standard as they should be and although it would be nice to say that things are getting better with each new software release, that doesn't appear to be the case. However, it is an area which software developers should be addressing and the situation can only get better. We hope.

cing

This month Ian Waugh takes you through using Midi files



● *These are the same Midi files but with a Rhapsody Midi File icon*



● *Rhapsody can take a shoet while to load the Midi file... and is kind enough to warn you*

material to choose from as there are thousands of Midi files available for other computers.

There are two steps to loading a Midi file from another computer. The first concerns the physical transfer of the file which means it must be on a disk format your computer can read.

The 32-bit range has its own disk format so you can't pop in an Amiga or Mac disk and load the file straight from that. However, the ST disk format is almost identical to MS-Dos – the PC disk format – and the new Archimedes can read this. Older machines can use a program such as MultiFS, PC Access or PCDir which is Careware – almost Shareware – and can't format MS-Dos disks but it can read them.

There will be an application called MacFS which allows the Archimedes to read Mac disks. The Mac can read MS-Dos disks using Apple File Exchange which comes with it and there are proprietary programs such as Access PC and Dos Mounter which are more friendly.

Amigas are a law unto themselves. I don't know any utility for any computer which allows it to read Amiga disks. Probably the best Amiga Dos disk reader is Messy Dos and it's PD – but it's not available for the Acorn range. Having transferred a file to your hard disk or to an Arc-format disk, you can't simply load it into your sequencer. The Archimedes uses a system of file identification called File Types. These are stamps or attributes tagged on to files which let the computer know what sort of files they are. It enables the 32-bit range ➤

General Midi

It's one thing to transfer music data between computers and sequencers but unless you and the originator of the file have the same synthesiser, the music won't sound the same. Bass lines could be playing on flutes, the drum track may be playing congas instead of the hi hat and so on.

In an attempt to overcome these problems, GM – General Midi – was developed. This stipulates that certain sounds be assigned to specific Program Change numbers so a piece of music will sound roughly the same on any GM instrument.

GM divides the sounds into 16 instrument groups: Piano, Chromatic Percussion, Organ, Guitar, Bass, Strings, Ensemble, Brass, Reed, Pipe, Synth Lead, Synth Pad, Synth Effects, Ethnic, Percussive, Sound Effects.

It also stipulates that the instrument should have 24 dynamically allocated voices which means it can play up to 24 notes at the same time. Dynamic allocation means the unit assigns the notes to the sounds on an *as required* basis so you don't have to reserve a certain number of notes for each music part as you had to do on some earlier synths.

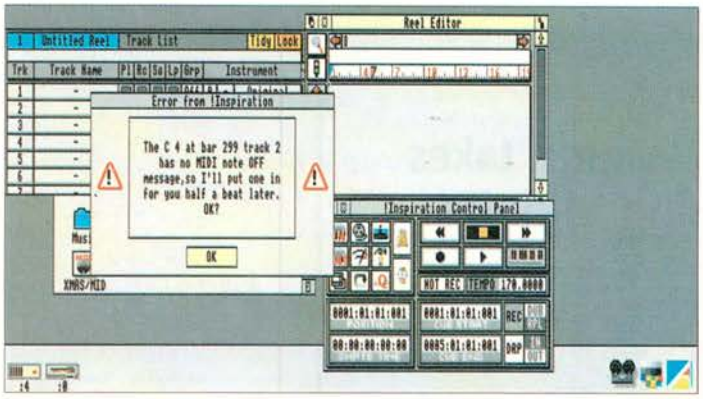
GM instruments are 16-part multi-timbral which means they can play 16 different sounds at the same time. Channel 10 is used for the drum track.

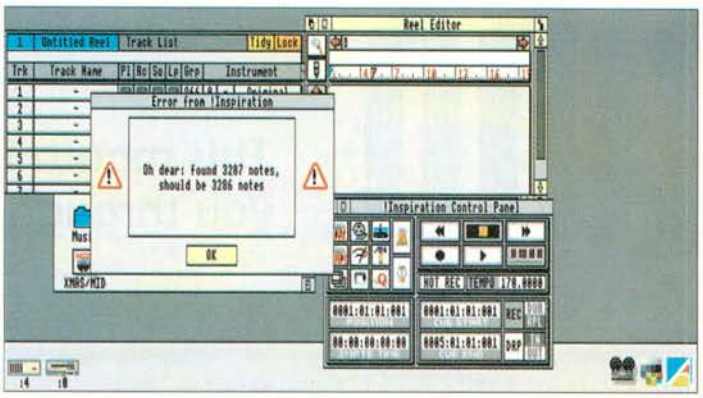
Several Control messages are also defined by GM. These include:

Controller 1	Modulation
Controller 7	Volume
Controller 10	Pan
Controller 11	Expression
Controller 64	Sustain
Controller 121	Reset All Controllers
Controller 123	All Notes Off

Roland started the GM ball rolling with the SC-55 Sound Canvas although, ironically, they implemented a superset of GM called GS which has a few more features. However, the two formats are highly compatible and the difference is unlikely to concern most users.

Other GS instruments include Roland's new SC-155 Sound Canvas, and Dr Synth. Yamaha's TG100 is a GM module and Korg's 03R/W is GM compatible. A new addition is the GMX-1 from Zone which is very budget with a RRP of £235.


Reel Editor
Untitled Reel
Track List
Error from !Inspiration
The C 4 at bar 299 track 2 has no MIDI note OFF message,so I'll put one in for you half a beat later. OK?
OK
!Inspiration Control Panel



● *Inspiration refuses to load some apparently-okay files which the seemingly less-tolerant Rhapsody will load. Aren't standards wonderful?*

Contacts

MultiFS £36, MacFS (£TBA)
Arxe Systems:
081-534 1198

PC Access £22.33
Minerva Software:
0392 437756

!PCDir (Careware Disc 7) £7
Norwich Computer Services:
0603 766592

Roland: 0252 816181
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Midi file formats

Just to complicate matters even further there are three different Midi file formats.

- Format 0 stores all Midi data for all Midi channels on one track.
- Format 1 stores data for each Midi channel on a separate track.
- Format 2 is similar to format 1 but allows each track to have its own tempo and time signature.

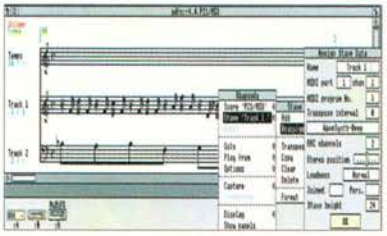
Format 1 is the most common file type although most programs also support format 0. Format 2 is not very common at all and would seem to have limited practical application anyway.

➤

to give files distinctive icons and it allows the software to recognise compatible files.

If you save a file from an application and then reboot the computer, you'll notice that the file appears as a blank document until the computer sees the application again when it suddenly acquires an icon. This is due to the File Type.

The Midi File Type is FD4. That's a hex number but you needn't worry about hex – just use it. You



● *Rhapsody puts each Midi channel on a separate stave. It's easy to assign them a Program Change number in the Assign Stave data menu*

can give a file a Midi File Type from the Desktop, if you have Risc OS 2 press F12 and enter:

```
*settype <file name> FD4
```

or use a PD utility. With Risc OS 3 there's an option on the file submenu to change a file's type.

Now you can try loading the file and with a little luck it will load and play as you would expect. But read the section on Midi file compatibility problems. In spite of potential problems, Midi files are well worth investigating as they will greatly expand your music library.

● *Next month we'll investigate drum maps and look at drum pattern programming in general.*

Rhapsody and Midi files

Rhapsody can read Midi file formats 0 and 1 and save data in format 0. On reading a file it assigns different Midi channels to different staves and it will split a format 0 file on to separate staves.

However, the manual admits the program chooses to ignore certain types of data. Program Changes, for example, are not registered although it's easy enough to reassign the Midi channel – if required – and enter a Program Number in the Assign Stave Data menu.

Rhapsody produced several *Note too long* errors, locking up the computer in the process. Inspiration will attempt to repair a file containing illegal data.

Also, Rhapsody has a limited resolution and files containing short notes are not always transcribed correctly. If you have access to the file in the original sequencer, it's a good idea to quantise the notes. A file created in Rhapsody shouldn't create any note length problems.

You don't need a Midi instrument or even a Midi interface to be able to load Midi files into Rhapsody. Once loaded they can be configured like any other Rhapsody file.

Midi File data compatibility problems

Even when you are able to transfer files to the 32-bit machines you may run into other problems. For example, some sequencers reject certain types of data. A favourite to omit is System Exclusive data.

This is information which, as its name suggests, is exclusive to a particular manufacturer or instrument. It's most commonly used to transfer voice information. Producers of Standard Midi Files really shouldn't put Sys Ex in their files – and few do.

Some sequencers save loop points and special arrangement formats in their own version of a Midi file but they don't always get the format right so some files may load into other programs while others may not. But even when you are able to transfer note data, one of the least transferable aspects of a piece of music is the tempo and tempo changes.

The trouble is, there is not a universal Midi message for tempo and different sequencers handle tempo in their own way. Some have a dedicated Tempo or Conductor track. Others use Pseudo events. In fact, tempo is an optional adjunct to the SMF format. No wonder there's confusion.

Generally, sequencers which don't recognise a particular tempo implementation will ignore it so at least you should get the notes. However, I haven't discovered any occasion when tempo instructions have caused a program to refuse to load a file.

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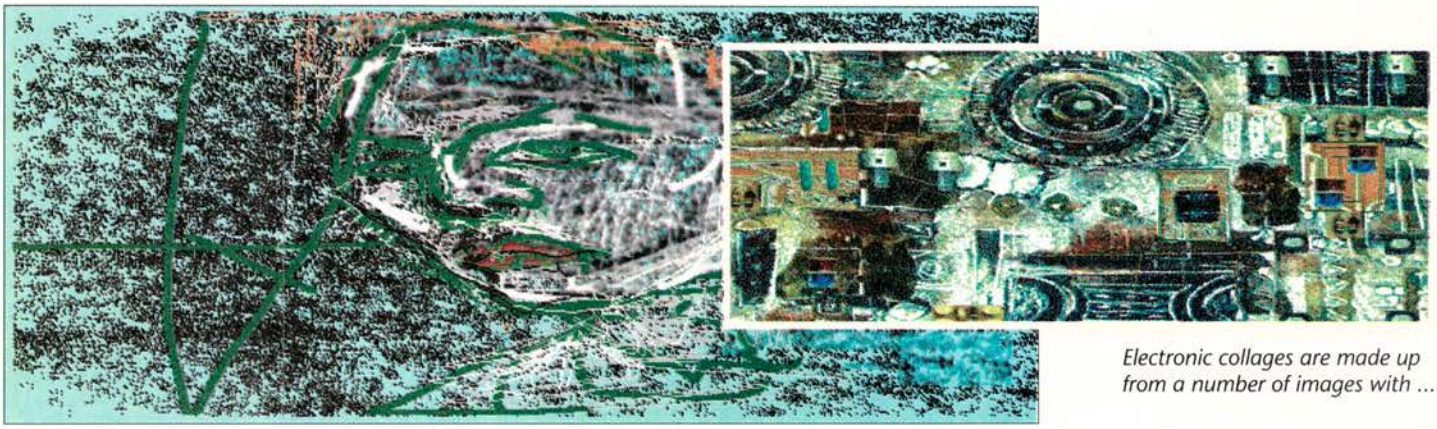


Electronic collages are made up from a number of images with ...

● *Portrait using the wash effects available with electronic paint*

An aid to design

Steve Bruntlett explores some of the true painting packages available

HAVING used Paint as the main package for the first three articles it soon becomes obvious that while it does some things well, it's only a sprite editor.

This article will cover some of the basics of painting with computers and the rest of the series will tackle projects which illustrate some uses and possibilities for CAAD – computer aided art and design.

I'll be concentrating on the use of pixel-based systems as opposed to object-based systems using drawing. A drawn image needs to be printed to be useful, a painted image can either be printed or viewed on screen. However, an object-based image is far more accurate when printed – especially in 256 shades.

The first proper paint package for the Archimedes was Artisan. This operated in Mode 12 and gave 16 colours with which to produce art work. A few years on came packages such as Pro-Artisan and Atelier that operate with a fixed palette of 256 colours.

With a 16-colour package you can alter any of the colours to a total range of 4,096 giving much more flexibility and subtlety but at the expense of working with a limited number of colours.

This means that you can produce specific flesh or landscape tones and is nearer to the way artists work with a limited palette. Although you can only ever have 16 colours on screen at once, these can be mixed by spraying or dithering to give a much wider range of optically mixed colours.

These early packages used a single fixed size screen to work on apart from one or two that offered shadow or double size work screens.

This may not be a problem to most electronic painters but newer packages such as Revelation offer a user-defined page size within a standard desktop window which is useful if you want to produce portrait – vertical – format work.

You can also have up to eight pages on screen at the same time if you need to. The other problem with these early packages was that they used a fixed mode as well as a fixed screen size. This wasn't a problem using standard monitors but it is when using a multisync.

The advantage of newer packages such as Revelation is that they offer user-defined screen areas and allow you to use any mode that works with your monitor. So if you want to work in a high resolution 256-colour mode you can but it uses up a lot of disk space.

However, if you only want to use a high resolution two-colour mode it takes up a lot less space. Using a screen compression program can reduce the disk space required by Mode 21 or 28 screens but if you're using large working areas such as A4 or A3 you may also need extra memory.

The early packages used brushes of different shapes and sizes to create work that often looked as if it had been produced with felt-tip pens. This seems primitive in comparison with centre-weighted airbrushes and textured painting

tools but good results could be achieved.

One way round a limited range of brush shapes is to produce your own by cutting out part of the screen and painting with the resulting sprite. A sprite can be thought of as any section of the image up to full screen size.

Early sprites were rectangular, but irregular shapes were developed often with associated masks. To produce a textured brush was a matter of spraying or drawing areas on to the screen and cutting out the part to be used as the brush. Such sprites could be stored temporarily in sprite stores or on disk.

Editing

Another of the basic tools of electronic paint is cut and paste. In programs like Artisan this uses outlines to represent the rectangular areas to be be cut and pasted but in the process they can be flipped horizontally, vertically or rotated and/or scaled.

The disadvantage is that you could only see what the result looked like when the cut area was pasted into place. This could generally be undone or removed, so it wasn't particularly a problem.

But even using the modern methods of cutting and pasting with programs like Revelation imagePro you still can't see the cut area as it's being rotated or scaled although you can after it's been flipped, although Risc OS 3 may change that.

The first main improvement over *felt-tip* type brushes was the ability to use wash or blending tools which enable you to blend areas or lines of colour with adjacent areas or into the background.

This has been developed in recent packages such as Revelation with a wide range of blending and sharpening tools plus wash colours.

Painting with a wash colour – even though there are only eight – is more like painting with watercolours than with felt-tips or an airbrush in that each subsequent stroke over the same area produces a shade nearer the full intensity of the colour selected.

One of the more sophisticated attributes is the transparency. While cut and paste and sprites are analogous with scissors and paper – apart from the rescaling bit – transparency is only partly analogous to photographic processes.

Where early packages turn a single colour transparent – allowing sprites to be lifted from single colour backgrounds or single colours in parts of the screen to be seen through – later multiple transparency was introduced and in more recent packages complex transparency and masking effects can be produced by using undo and last change options.

Not only can parts of images be pasted into place on top of one another to form a collage, they can also be blended in varying degrees and directions into the background.

This is one of the most interesting aspects of the new Revelation imagePro high-quality blending facility. With the rise of clip-art disks and visual imagery stored on CD-Rom as well as cheap digitisers and scanners, plenty of material is available.

One of the keys to all computer graphics is knowing when to stop. This is generally determined by the gradual decrease in quality or resolution of image.

A powerful array of tools

One of the drawbacks with some of the tools provided with the second wave of packages was the temptation to overuse graduated shading and sprite fills.

Spherical shading became extremely easy to use and illustrated the possibility of relying on the computer to produce slick ready-made effects rather than trying to produce a visual effect of your own.

These are powerful tools and need using with care but they can be useful for providing more realistic 3-D effects or for producing graduated skies and so on. They are extremely handy when used as the basis for aerial perspective effects in landscape where colours become greyer and fainter in the distance but when used badly they can give CAAD a bad name.

Facilities for pattern making have been much improved recently with options for flipping and mirroring in different directions with selectable offsets and user-definable distances between motifs.

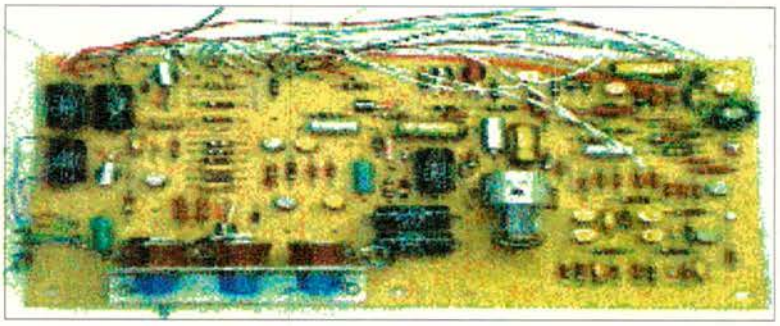
Early packages allowed you to substitute one colour for another or sets of colours for alternative ones. This is ideal for producing alternate colourways for textile design or for seasonal colour changes in landscapes and may be one of the reasons why computer-aided textile design has increased in popularity.

Colour separated printing was also introduced as realistic proposition with Artisan 2 and meant that images could be separated into their constituent spot or process colours for screen or process printing.

Newer packages have developed colour manipulation to a fine art, as it were, offering possibilities for posterisation, lightening or darkening colours for example and not only over the whole screen but applied to specific tools such as brushes and geometric drawing tools.

Hopefully this article will have given you some idea of the possibilities of computer aided art and design using paint systems. Some of them will be dealt with more fully in future articles but to carry out some of the work illustrated you'll need a more sophisticated package than Paint – we'll be using Artisan2, Pro-Artisan and Revelation 2.

● *Next month the series will continue with a look at some specific topics and techniques.*



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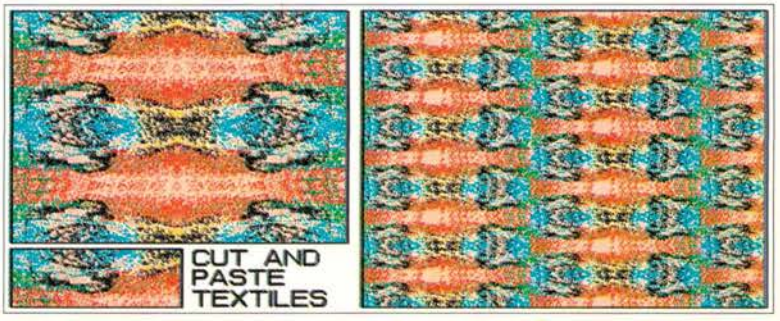

● *Colour manipulation, flipping and mirroring are ideal tools for textile design*

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Recourceful programs

Terry Blunt examines how to display information in HelixBasic windows

WE began to develop the ScrapPad application in my article in the December issue. However, we can really go no further without deciding on the form, or structure, of the data we'll be using. For every entry, or object, in ScrapPad the very least we need to know is the page number, object type and data.

Page number is obvious. In order to keep things fairly simple we'll only be allowing one object per page so we won't have the problem of deciding in which order objects should be displayed. At a later date this could, of course, be modified, but for now the object type will be text, draw or sprite.

The data will be held as a string. This is obvious enough for text but will probably seem curious for the other types. In fact, it's a cheat. What we will be storing here will be the disk file path to the object not the object itself.

This saves a lot of storage space as well as avoiding some very real problems defining a data type that can effectively handle a wide range of object types.

In BBC Basic we would set up three arrays: One of integers for the page number, another for the object type and a string array for the data. With HelixBasic there is a much better method. Instead of these parallel arrays, we use what is called a *thread*. These are similar to records in Pascal, or structures in C.

One of the other problems with arrays is that their size is fixed when they are created. This is very wasteful as you are forced to make them big enough to cope with all foreseeable circumstances. You don't have that problem with threads.

They start at zero size when they are defined and can be added to indefinitely, memory permitting. Every time you call for a new entry to be made to a thread, Helix just tacks another lump on the end.

Referring to our ScrapPad application, first you define a thread to consist of the primitive data types like this:

```
THREAD Pages, Number%,
Type%, Text$
```

Open a window to the *initialise* procedure and enter that line just after *MainTitle$*. Leave this window open for now. We can add complete threads with the ADDTHREAD command. The size of the structure will grow accordingly. It will also shrink if we use REMOVETHREAD to delete an entry.

A point to keep in mind is that threads start from number 1, not zero, as is more common with arrays. You must make sure that any thread references are not only within the number added to, but are greater than zero.

Using resources

HelixBasic looks on drawfiles as *resources* and has dedicated loading and display commands. This makes things a lot easier as you don't need to know anything about the structure of these to make use of them. The commands of most interest to us are first:

```
LOADRESOURCE
<resource name>,
<filename>
```

This command will load the object from disk and tag it with the name you give it as *resource name*. Having loaded the object into memory you need to get it into the window. You use:

```
PLACERESOURCE <window>,
<resource name>,
x,y,width,height
```

The window is the name of the window you want to display the object – *main* in our case and the resource is the name that you used with LOADRESOURCE. HelixBasic automatically scales drawfiles so that they fit the box defined by the other parameters.

To remove a resource and give the memory back to the Wimp, you simply issue the command:

```
REMOVERESOURCE
<resource name>
```

This command also very conveniently deletes this object from the window display.

When dealing with resources you should bear in mind that the resource name is not a true variable – you can't find it's value or change it. To you it is only a name tag, only HelixBasic know exactly what it is.

There is just one final point we have to look at before we can really get to work on ScrapPad. This is the method we use to tell our program that there is a file that needs to be loaded. Again, Helix handles most of the hard work for you and hands you the name of the file that has been dropped on to the icon bar and its type.

If you open an editing window on *Iconbar Info* you will see that there is a set of entries at the bottom for just this situation. First you should enable file drops by clicking on the button so marked. In the filename field enter *Filename$* and below it *Filetype%*.

We need to know the file type to check that nobody is trying to load the wrong type of object. Finally enter *PROCverify* as the command to execute. This is the procedure we will use to ensure that everything is OK before loading the object.

Close this window and look again at the already open initialise window. Below the THREAD command enter:

```
Resource%=FALSE
```

This is a flag to tell us whether a resource is currently loaded or not. As we will be swapping around with a single resource handle that we'll be calling *Object* we need to know if it is currently in use and whether we need to dispose of a resource.

You can now close the initialise ➤

Terry Blunt is trained in electronic testing and design. He has been writing for computer magazines since 1983 and his book *The Archimedes Game Maker's Manual* was recently published by Sigma Press.

```
Procedure Name : frontpage
    Parameters :
TEXT main,red%,120,250,"Empty Scrap Pad"
TopPage%=0
Display%=0
IF Resource% THEN
REMOVERESOURCE Object
Resource%=FALSE
ENDIF
```

● *Getting the Scrap Pad started*

```
Procedure Name : addpage
    Parameters : RETURNt%,RETURNd%,RETURNr%,f$,Object%
LOCAL Result%
t%+=1
d%+=1
Result%=ADDTHREAD Pages(t%,Object%,f$)
PROCdisplay(d%,r%)
```

● *Putting a new object on the screen*

```
Procedure Name : verify
    Parameters :
CASE Filetype% OF
  WHEN &AFF
    PROCaddpage(TopPage%,Display%,Resource%,Filename$,2)
  WHEN &FF9
    PROCaddpage(TopPage%,Display%,Resource%,Filename$,3)
ENDCASE
```

● *It's so easy once you have the right routines*

```
Procedure Name : initialise
    Parameters :
MainTitle$="Untitled"
THREAD Pages, Number%, Type%, Text$
Resource%=FALSE
```

● *Setting up the global variable*

```
Program Information
Program Name :  !ScrapPad
Purpose :       To Demonstrate Helix basic
Author :        Anybody
Version :       0.01
Linked variable
Select Command : OPENWINDOW main
Menu Command :   OPENMENU bar,MOUSEPOSX-64,186
Adjust Command :
Trap file drops on iconbar
Filename variable : Filename$
Filetype variable : Filetype%
Command to execute : PROCverify
```

● *Adjusting the iconbar to allow drags*

➤

window and open one on the frontpage procedure. Underneath the TEXT command add:

```
TopPage%=0
Display%=0
IF Resource% THEN
REMOVERESOURCE Object
Resource%=FALSE
ENDIF
```

Close this window. Frontpage will be used later to clear the scrap pad so it makes sense to zero the number of pages and generally tidy up here rather than in the initialising.

There is a command for finding the number of thread elements but it is faster and easier just to keep track with an integer and *Display%* is the variable that we will use to mark the page that is actually being viewed. We'll be making more use of that later.

Now we need to create our checking procedure. To do this create a new procedure and call it *verify*. In the body of the procedure enter the lines below:

```
CASE Filetype% OF
WHEN &AFF:PROCaddpage
(TopPage%,Display%,
Resource%,Filename$,2)
ENDCASE
```

The *Filetype%* and *Filename$* are set by the file drop routine we called for earlier when we modified Iconbar Info. The drawfile type is &AFF so as it stands only that type will pass the file name on to the procedures that load and display the object.

The number 2 on the end is the value that we will assign for drawfiles. We can then identify them in future by looking at the *Type%* field of the thread.

We're nearly there now but we have to write the addpage procedure. Create a new procedure called *addpage*. There are quite a few parameters to be passed through in this procedure and they should be entered on the parameter line so:

```
RETURN t%,RETURN d%,
RETURN r%,f$,Object%
```

You will notice that some of the variables use the RETURN keyword. This works in the same way as with BBC Basic and ensures that any changes to the variables inside the procedure are passed back and used to update the global versions, *Display%* in the case of *d%* for example. Now enter the lines below in the body of the procedure:

```
LOCAL Result%
t%+=1
d%+=1
Result%=ADDTHREAD Pages,
t%,Object%,f$
PROCdisplay(d%,r%)
```

Finally we can create the display procedure. We set two parameters:

```
d%,RETURN r%
```

The body of the procedure is:

```
IF r% THEN
REMOVERESOURCE Object
r%=FALSE
ENDIF
CLEAR main
LOADRESOURCE object,f$
PLACERESOURCE main,object,
10,10,480,430
r%=TRUE
TEXT main,Black%,465,32,d%
```

You will see that *r%* is set to false, then shortly afterwards set to true. This is done deliberately to ensure that we don't, for any reason, end up with a resource removed, but still marked as valid.

In general you should set and unset flags as close as possible to the actions they identify. The last line simply lets you see which thread entry you are looking at. Later we will turn this into an actual page number.

You might be tempted to think that having all these procedures calling each other is rather unnecessary, but later, as we develop ScrapPad, they will fill out and you will see how useful it is to keep the different functions they perform well apart.

As it stands, ScrapPad will correctly load and display each drawfile you drag on to the icon bar, ignoring any other filetypes. There are two obvious problems here.

The first is that you can't re-display earlier drawfiles, even though ScrapPad has remembered them.

This we will deal with later as we've already covered a fair bit of ground.

The second problem is that our user will want to put other things into his or her scrap pad. This is relatively easy to deal with.

Helix understands a number of file types, as well as drawfiles it can directly load sprites as resources. These have the file type &FF9, and to get ScrapPad to handle them we only need to alter two lines!

We will use the number three to identify sprite objects later on so open the verify procedure and just above ENDCASE and insert the following:

```
WHEN &FF9
PROCaddpage
(TopPage%,Display%,
Resource%,Filename$,3)
```

● *Next time we'll tidy up what we have so far before delving deeper into the power of HelixBasic.*

● *Getting an object on the screen*

```
Procedure Name : display
    Parameters : d%,RETURNr%
IF r% THEN
  REMOVERESOURCE Object
  r%=FALSE
ENDIF
CLEAR main
LOADRESOURCE Object,Pages(d%),Text$
PLACERESOURCE main,Object,10,10,480,430
r%=TRUE
TEXT main,Black%,465,32,d%
```

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Viruses are unfortunately now becoming a serious problem on Archimedes Computers and at the present time we know of at least 34 families of virus – 42 viruses in all – which will upset the operation of your computer in various ways.

The effects vary from relatively harmless messages, which although annoying, do not actually cause any serious problems, to viruses which can potentially wipe your hard disc or network.

Even floppy disc drive machines can suffer the effects of viruses as unless the computer is switched off after every new disc is used, the virus can spread from one floppy to another quite easily.

A piece of software originally developed by Acorn Computers – !Killer – forms the basis of Pineapple's Virus Protection Scheme. The software is constantly updated to include the detection and removal of all known viruses, and also has many new features which enable it to be very flexibly adapted to different modes of operation. It is fully Network compatible and can scan any medium.

Before you consider using any of the currently available 'free' virus detection programs you should check whether they can detect and remove all the viruses that !Killer can handle. Don't risk using software that only makes you think you are safe.

Currently known Viruses:-

Archie	*Arcuebus*	*BBCEconet*	*Bigfoot*	*BooHoo*	*CeBIT*
Code	*Ex_port*	*Extend*	*Funky*	*Garfield_I*	*Garfield_W*
Handler	*Icon*	*Image*	*Increment*	*Irqfix*	*Link*
Mode87	*Module*	*MyMod*	*NetManager*	*NetStatus*	*Parasite*
Penicillin	*Runopt*	*Sprite*	*SpriteUtils*	*T2*	*Terminator*
Thanatos	*Traphandler*	*Valid*	*Vigay*		

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VISA

There's a pl

I HAVE probably derived as many laughs from *Fish!* as any other two adventures put together. This Magnetic Scrolls gem was a little late in arriving on the Archimedes format, but it was well worth waiting for.

The background to the adventure is fairly straightforward: You are an interdimensional secret agent – Agent 10, in fact – and your mission is to thwart those international terrorists *The Seven Deadly Fins*. They're a bunch I have trouble with from time to time myself on the day job.

There you are, vacationing as a goldfish in a nice secluded bowl when it all happens: *Someone's coming. Good, it must be time for food. SPLATTO. A hand as big as a bus drops something hard right on your head. Understandably dazed, you flip over and, through a swirl of ant eggs, spot what hit you: a tacky plastic castle. It looks like a rush job. Sir Playfair must be in trouble. And you thought you were on vacation...*

Apart from an amusing opening, the core of this text sets the first puzzle to be solved in the adventure. Every Magnetic Scrolls game starts with a relatively easy puzzle as a way of encouraging beginners, I suppose. Personally, I think this is an excellent idea.

The continuing text makes it quite clear that you must now enter the castle in order to start your mission, but if you try typing something like *Enter castle* you are told that you can't do it while you are upside down. If you then turn over, the picture changes as the castle now appears upright. Have a nibble of pondweed and enter the castle.

There you are given the task of locating and re-assembling a focus wheel which the Seven Deadly Fins have stolen and dismantled on a planet full of fish – which, in view of your present disguise, is very convenient. Three warps and a glass box now appear.

You'll soon discover that a mere goldfish can't do anything with the box except examine it, and so you need to turn your attention to the three warps. There is a small warp, a jagged warp and a smooth warp. The smooth warp is very trendy looking and clearly leads somewhere cool – and that is where you need to go.

You'll end up in a clearing in a forest inhabited by your ex-colleague Micky Blowtorch: Micky is

More madness

IN this account of The Price of Magik, I'll take you via the route I used, rather than entering the front door, even though the door turned out to be perfectly harmless.

Climbing up to the east attic puts you into darkness: This is no problem, however, provided you have collected the eyebright from the herb garden. Rub this into your eyes, and you will be able to see perfectly normally. There's a mirror covering the south wall and this needs to be cut with the diamond ring taken from the knucklebone, also in the herb garden.

The mirror concealed a recess, and inside it a Prism is located: This is the focus of a spell (XAM) which enables you to look at the magik properties of anything you choose to target. Nearby, in the alcove, are some robes which you should wear until you encounter the golem who needs to be able to slip into something comfortable.

The cage in the west attic is not really needed, but you can use it to carry the bat in. Not far away is the office containing a table. Examination of this pays dividends in the shape of a sharp knife and a scroll. The table is inscribed MAD: This spell will make the target mad for a while once you have discovered the Library and located the grimoire which is its focus. Reading the scroll tells you how to use spells.

In the Misty Corridor there is a feeling of magik and a wheel. This object is crucial to defeating the evil Myglar, since it creates a no-magik zone around an object, once you have located the DED spell – an altar helps here.

Close by is an oak-panelled corridor with a secret exit leading to a store room where you'll find a lever and a sword point. However, to get in here, you need to cast the SEE spell which has the feldspar lens as its focus. This can be found not far from the Library: Cut the curtain covering the west wall of the collapsing junction and you can get into the inner sanctum where it is to be found. The sword point has its other end in the panelled corridor near the elm corridor. The hilt is out of reach here, though, and so the lever needs to be pulled to release the sword.

Not far away from the oak-panelled corridor is the table room. The table shows a wargame from the past in progress. To animate it, cast the BOM spell – its focus is the trumpet held by the cherub in the hall of statues, and hanging around the grandmother clock is helpful here, as well as producing the pendulum which is the focus of another spell.

Finally, for this episode, go out on to the roof garden. There are two valuable items to be found here: First is the wolfsbane, which will help defend you against the werewolf, second is our trusty friend valerian. In this game the valerian is the focus for the FIX spell: Finding the tapestry will help here, and FIX can be used as a weapon against dead creatures such as the skeleton.

To be continued.

aice for us

now a warp junkie, but – like all the characters in the game – can be interrogated and some of his replies are amusing. Ask him particularly about the parrot and the fins, but *not* before you have completed this section, because a move counter is at work.

From the clearing you need to move southeast twice to the location described as *outside the Smithy* which you enter by moving East. You'll find a birdcage on the floor containing a parrot and a mould. This parrot is a timebomb in disguise and is due to explode in the near future. The trick here is to open the cage and leave the Smithy. The parrot will then depart and explode safely far away in the forest thus saving the mould from destruction.

You can now enter the Smithy once again and retrieve the mould. Opening the cupboard will disclose tongs, a crucible, a hammer and some asbestos gloves – and you need them all. Each is worth examining: You'll have a smile and also receive some helpful hints.

Again, though, I must issue a move counter warning: If you do take time to examine things, then be prepared to have to restart the game. Micky is the villain of the piece here. You've got to make a gold ring – using the equipment provided – out of a gold disc that Micky acquired by dubious means.

If Micky finds you with the disc or the mould he will interfere. The basic gameplay is as follows: The exploding parrot will distract Micky and he will leave the disc in the clearing while he goes to investigate. You need to be in the clearing four moves after you hear the explosion. You will then be able to take the disc and return to the Smithy.

Wearing the gloves, you need to put the disc into the crucible and then hold it over the fire with the tongs. The gold will melt and then you can pour it into the mould. You then take the mould to the Cool Glade and wait until you are told that it has cooled down.

Hit the mould with the hammer and a ring emerges: Take it and the first part of your mission is completed. You will – after a bit of a fright – be warped back to the goldfish bowl and the ring will be deposited into the glass box. And that's where we'll leave things for now.

Hatter's Helpline

Upgraded to RiscOs 3.1 and found trouble with some Magnetic Scrolls adventures?

Try:

```
*RMKILL
SHAREDCLIBRARY.
```

● ***More details next time.***

For the Elite

To start on a general note, my opposite number, HacMan, mentioned a while back that Risc OS 3.10 means that some programs won't work properly owing to some changes in operating system calls. I've just upgraded my A310 to 4 megabytes of ram and treated myself to a Risc OS upgrade at the same time.

Some problems have begun to make their mark, and those software houses still in existence are happy to offer replacements to people owning honest software – rip-off owners, eat your hearts out.

If you should come across a snag with a particular adventure, please let me know so that I can pass on the bad news. I've had no trouble at all with ArcElite to date, I'm glad to report.

I've had another letter from Ray Briddock who's had an interesting encounter of the wossname kind (who's been playing Jinxter? Ed). Dumped into Witch Space, he disposed of a scrum of Thargons via his energy bomb and then (just for fun) jumped continuously until becoming mass locked. Lo and behold, there was a solitary Space Station gently rotating, proclaiming a Safe zone.

His docking computer tried to oblige and failed: Skidded off the side, and then tried to ram the rear of the Space Station. Ray took over manually and found he could fly right through. Various methods of destroying it were tried to no effect – though missiles got the ECM treatment. Leaving the Safe zone took over 6 minutes. Ray has tried to repeat this but has had no luck yet. Similar reports welcomed.

Jonathan Walton, a peaceable chap who rejoices in the title Commander Nukem, has a couple of gripes: He says I should not have awarded 100 per cent to ArcElite in the review – 120 per cent is his verdict. Secondly, he reckons that, once you are a fugitive, you cannot repair your status without using an Escape capsule. Quite true, Jonathan, but don't forget that you are classed as a (minor) criminal the moment you become an Offender.

It is the Offender status that can be reduced by clean living and good deeds such as helping police. However these good deeds have to be carefully targeted: It's no use blowing up any old thing – that's a quick way to become a Fugitive.

When other space ships appear on your radar *do* check your status: If it says Red, you can safely hit anything in sight apart from Police Vipers or other Cobra MkIII craft which show white (Military) laser fire.

If you are Yellow check if any combat is in progress: If there is, decide whose side you are on and blast away – you are unlikely to go far wrong. In a general brawl the following are just about guaranteed fair game: Mamba, Krait, Gecko, Fer-de-Lance, Cairnan, Adder, Moray, Copperhead and Sidewinder.

Solo craft, minding their own business such as Pythons, should be left severely alone, as should groups of craft flying in formation and minding their own business. Finally, Jonathan comments on the long hard slog to higher status: Quite right, though there is a charming wife and mother in my flock who has been Elite for some time – she's also a primary school teacher. Any connection, do you think?

Nathan Atkinson reports an odd happening on his BBC Master version of Elite. In Galaxy 8, he landed at Inzaan. Pressing the Data key, he got a jumbled message of the sort usually found while on a Mission. Nathan is Elite and so I assume he's done both Missions: Has anyone else come across this kind of thing?

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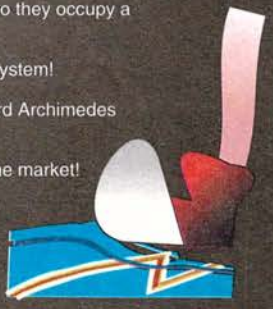

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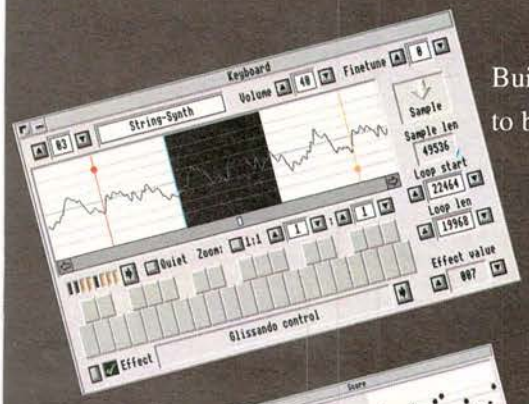

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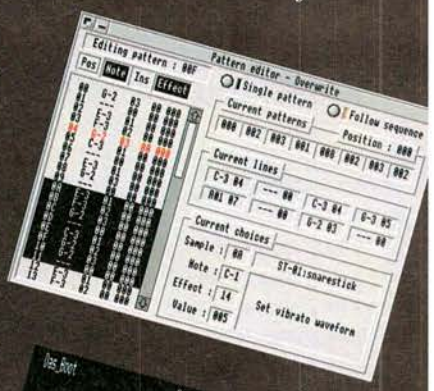

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Send a Blank Disc and SAE for a Free Demo copy of either Package.

The Professional Data Management System Archivist

Cards are created with the Designer part of the package, a new form can be designed simply by selecting fields, and dragging them to their required position.

Text, Integer, & Real field types can be set,in addition to multiple format Date fields, and Formula fields with user definable equations.

Alterations, for example - extra fields can be added to a card, even if you have started imputing data, and no data will be lost.

Archivist is able to Store and Display or Play Textfiles, Sprites, Drawfiles, Maestros, Samples and Soundtracks.

Archivist can be interrogated using either of two search routines, Easy Search gives you a duplicate copy of the card, you type the variable to be searched for in the appropriate field, and Archivist does the rest.

For those requiring a little more flexibility, a complex search equation can be built up using mathematical, and Basic Operands.

Archivist of cause, also provides a Search and Replace facility, plus a fast Primary & Secondary Sort routine.

A Clipboard, allowing cut and paste operations, and a user definable Quick Entry routine, speeds up data entry into Archivist considerably.

Card Print allows printing of cards in WYSIWYG format, using of course the standard Outline fonts. (2 supplied)

Reports generator, allows your data to be presented in a tabular form. Archivist also has a specifically designed Label Printer for your Names and Addresses files.

Archivist files are saved compressed to save valuable disc space, and with a Password for privacy if required.

Archivist can automatically produce CSV files, with the option to create Graphbox headers. Also it is possible to save data as a textfile for export to DTP's etc.

Statistics window displays the Averages, Minimums, Maximums and Totals of each field for the entire database.

Archivist is able to Import files from many existing databases, on the Archimedes, as well as the BBC and PC.

All this for just:

£29.95 inc.

Existing users can upgrade to ver 4.40 for just £5, when returning the original disc.

Oregan DEVELOPMENTS

Oregan Software Developments
36 Grosvenor Avenue, Streetly, Sutton Coldfield, B74 3PE.
Tel: 021 353 6044.

Access VISA

Watford Electronics Ltd

Established 1972

Mail Order & Showroom: Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England
Tel: 0582 48 77 77 Tlx: 8956095 WATFRD Fax: 0582 488 588
Showroom Only: Jessa House, 250 Lower High Street, Watford WD1 2AN, England
Tel: 0923 237774 Fax: 0923 233642

The sign of Quality

Shop Hours: 9am to 6pm (Mon.-Sat.) Thursday 9am to 8pm. FREE customer car park.
All prices exclusive of VAT; subject to change without notice & available on request.

Acorn
The choice of Experience

Archimedes micro

System	Basic	Colour	Multiscan
A3010-1Mb Family	£424	£584	£749
A3010-2Mb L/C	–	£680	–
A3020-2Mb FD	–	£749	£799
A3020-2Mb HD60	–	£899	£949
A4000-2Mb HD80	–	£949	£999
A4000-Home Office	–	£999	£1049
A5000-2Mb HD80	–	£–	£1399
A5000-L/C 2Mb HD80	–	–	£1445
A5000-4Mb HD120	–	–	£1599
A5000-2Mb ES	–	–	£1299
A5000-2Mb NS	–	–	£1399
Pocket Book	£212	–	–
Pocket Book Class	£2127	–	–

Archi A4 Notebooks

A4 Notebook with 2Mb RAM	**£1399**
A4 Notebook 4M RAM/60M HD	**£1699**

FREE OFFER

When you purchase any of the above Archimedes Micros, we will give 10% of the value of the machine in Hardware or Software of your choice

Archi Accessories

- 3.5" 800K 2nd Floppy Drive (305/310) **£118**
- 5.25" 800K external Floppy Drive **£80**
- Acorn I/O Podule (Analogue/User/1MHz bus) **£79**
- I/O Podule (Analogue/User) **£49**
- MEMC 1A Upgrade **£29**
- MIDI add-on to Acorn I/O Podule **£27**
- MIDI Expansion Card **£65**
- Econet Network Board **£38**
- Archi replacement mouse – New design **£29**
- PC Emulator v1.9 **£95**
- Software Developers Toolbox **£149**
- Floating Point Unit **£455**
- Keyboard Extension Lead **£6**
- 2 Podule Backplane **£20**
- 4 Podule Backplane **£25**
- Fan for above backplanes **£10**
- Risc Os Extras Software Disc **£5**
- Ethernet Card **£149**
- SCSI Card 8 bit **£129**
- SCSI Card 16 bit **£149**
- SID Utilities Disc 1 **£5**
- SID Utilities Disc 2 **£5**
- SID Utilities Disc 3 **£5**
- SID Utilities Disc 4 **£5**
- ST506 Hard Disc Controller Card **£99**
- A5000 Dust Cover **£9pr**
- A5000 Technical Reference Manual **£–**

Risc OS 3 Upgrades

- A 5000 Software Upgrade Kit **£16**
- Software Upgrade Kit for the rest **£40**
- Hardware Upgrade Kit 300/440 **£25**

A3000 Accessories

- 3.5" External Drive **£95**
- Monitor Stand **£15**
- Technical Manual **£39**
- Serial Upgrade **£19**
- A3000 Dust Cover **£5**
- A3000 plus Monitor Dust Cover **£9**
- A3000 User Port/Midi Upgrade Card **£44**
- A3000 User/Analogue/IIC I/O Card **£38**
- A3000 External Podule Case **£15**

Graphics Accelerator Cards

The ultimate G8 range of Graphics Accelerator Cards from State Machine, for the Archimedes micro give more resolution, colours and speed.
Features:

- Fully programmable 24 bit colour palette allows a choice of 16.7 million colours. True 256 grey scale, primary and VGA palettes supplied for enhanced dithering with RISC OS applications.
- DTP now easier with fully legible one or two A4 page screen display in 2, 4, 16 or 256 colours.
- At least 25 frames per second local VRAM update allows applications to run without flicker or tearing of the graphics.
- Provides 50 frames per second update mode 12, 15, 20, 21, etc., on 30KHz+ line rate monitors.
- Extends the high resolution mode 23 from 2 colours to 16 at the same resolution allowing A3000 and A5000 computers to use high resolution in up to 16 colours.
- 4 layer single width podule – no soldering required
- Full documentation and operating software supplied.
- Requires RISC OS 3.10.

P.S. Not compatible with A3010, A3020, A4000 and A4.

G8 Pro additional features:

- Desktop compatible 768 x 576 CCIR PAL interlace in 256 colours
- 1Mb on-board VRAM
- External genlock facility

G8 Plus	**£245**
G8 Professional	**£345**

Acorn A3010 Family Pack

Supplied with 3.5" Floppy Disc Drive and a mouse, Colour Monitor and lead, TV modulator, 20Mb fast IDE Hard Disk Drive, 'Compression' utility to increase the Hard Drive capacity to typically 40Mb, the highly acclaimed Computer Concept's Impression Junior DTP package, EasiWord wordprocessor, Quest for Gold game, applications suite of software packages and comprehensive audio training tape.

RRP: £1095

Sale Offer Price: £729

Above Package plus Acorn's Learning Curve **£874**
Additional 1Mb RAM **£29**

Special Education discounts available on micros, RAM upgrades, ARM 3 Turbo Card, etc. Please write in or telephone:

0582 48 77 77

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

- **R300**-4 Layer RAM upgrade board (Bare). **£25**
- **R302**-A3000 – to 2MB RAM Upgrade **£29**
- **R303**-A3000 – to 2MB RAM Upgrade (expandable to 4MB) **£49**
- **R304**-A3000 – to 4MB RAM Upgrade **£99**
- **R305**-A3010 – to 2MB RAM Upgrade **£29**
- **R306**-A3020 – to 4MB RAM Upgrade **£50**
- **R311**-A305 – to 1MB RAM Upgrade **£30**
- **R312**-A305/310 – to 2MB RAM Upgrade **£115**
- **R314**-A305/310 – to 4MB RAM Upgrade **£229**
- **R412**-A410/1 – to 2MB RAM Upgrade **£25**
- **R413**-A420/1 – to 4MB RAM Upgrade **£50**
- **R414**-A410/1 – to 4MB RAM Upgrade **£75**
- **R810**-A410/1 – to 8MB RAM Upgrade **£579**
- **R820**-A420/1 – to 8MB RAM Upgrade **£549**
- **R840**-A440/1 – to 8MB RAM Upgrade **£479**
- **A5000** – to 2MB additional RAM Upgrade **£82**

Desk Top Publishers

Acorn's Archi DTP Package	**£69**
Equasor £39; Expression-PS	**£19**
Impression 2 DTP Pack	**£123**
Impression Junior	**£69**
Impression Business Supplement	**£39**
Impression II Borders Disc	**£19**
Ovation DTP	**£89**

Archi Wordprocessors

Pendown Archi	**£48**	PD Spellchecker	**£40**
Pendown Plus	**£79**	Graphic Writer	**£19**
Pendown Outline Fonts	**£18**	Easiwriter	**£115**
1st Word Plus – 2	**£63**	EasiWord	**£58**

Databases

Flexifile	**£79**	Multistore v2.01	**£176**
Knowledge Organiser	**£42**	Pinpoint	**£65**
Magpie	**£40**	Pinpoint Junior	**£23**

Spreadsheets

Eureka	**£99**	Schema	**£89**

Business Graphics

GammaPlot	**£39**	Sigmaplot	**£39**

Integrated Packages

- Pipedream 3 **£116** • Pipedream 4 **£146**
- Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications **£98**
- Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school **£75**

Computer Concept's professional Art package ArtWorks £139

VISA Access

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing commonly used software such as the !Fonts application.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Single width EuroCard
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Optional on-card 20Mb or 40Mb hard disc
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	**£195**
ADA 0530	100Mb	16mS	**£295**
ADA 0570	200Mb	15mS	**£449**
ADA 0580	330Mb	15mS	**£799**

All the above 3.5" hard drives are supplied complete with Controller Card, cable & Software on ROM. (Internal fitting). For use with A300/A400/A500 series machines.

For A3000 users an additional external Case and PSU will be required.

AAA 0300 External Case & PSU for A3000 **£85**
Archi IDE Hard Disc Podule only **£89**

Internal Hard Disc Drives for A3000

State of the art, 4 layer internal IDE Hard Cards for the A3000. Software supplied in, On-board ROM.

ADA 0150	20Mb	19mS	**£149**
ADA 0720	40Mb	19mS	**£279**
ADA 0750	60MB	18MS	**£329**
ADA 0730	80Mb	18mS	**£399**

Supplied ready assembled. No soldering required. Simply plug into the allotted space.

Archi IDE Hard Cards

"Simply plug and play"

Watford's easy to instal, low cost, high performance, revolutionary IDE Hard Cards for the A300 & A400 series Archimedes.

ADA 0650	20Mb	19mS	**£159**
ADA 0660	40Mb	28mS	**£289**
ADA 0810	60Mb	18mS	**£339**
ADA 0670	80Mb	18mS	**£409**

(Can be used as a Removable Hard Drive)

NEW

Archimedes A300/A400 SCSI Hard Disc Offer
(while stocks last)

100MB Hard Disc Upgrade complete with Controller card, Cables, Formatter and Manuals

RRP: £799

Offer Price: £325

Also available with 16-bit controller **£359**

Leasing facility now available. Please telephone or write in for details.

Low Finance now available on Archimedes. Please telephone for details.

Archi to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.

New RISC OS Version also available (please specify)

- For A3000 **£15**
- For A5000 **£16**

For A3000 Serial Upgrade **(£19)** required

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features

- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices. **£42**

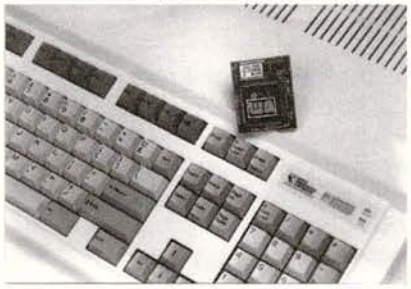
Minerva's Archimedes Software

EasyWord	**£18**	Time Tabler	**£549**
Home Accounts	**£35**	System Delta	**£59**
System Delta Program Reference Manual			**£29**

Stand alone Business Accounts Packages
Sales; Purchase; Order Processing and Invoicing; Nominal; Stock management
£79 per module
or Complete Business Package **£325**

ARM 3 Turbo Card MkII

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £169. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £24.

(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Special Offer £145

Acorn have satisfactorily evaluated Watford's ARM 3 upgrade and the A3000 upgrades are fitted by Acorn approved surface mount technology centre, therefore its fitment will not invalidate Acorn's warranty on the micro.

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£375**

FREE with every BBC Master purchased from us during February

A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER

Add-Ons & Accessories

Econet Module for the Master		**£42**
Twin ROM Cartridge for Master		**£9**
Quad ROM Cartridge for Master		**£14**
Master Reference Manual I	(No VAT)	**£14**
Master Reference Manual II	(No VAT)	**£14**
Master Advance Ref Manual	(No VAT)	**£14**
64K Upgrade Kit for B+		**£32**
Acorn 1772 DFS Kit complete		**£49**
ECONET Upgrade Kit for BBC B		**£42**
ALL ECONET UPGRADES Available		
ARIES' IEEE Interface for BBC B & Master		**£238**
Morley Teletext Adaptor with ATS Rom		**£99**
Ecolink		**£270**

Continued→ → → → → → → → →

Watford Electronics Aries PC Card

Access the world of MS-DOS from your RISC OS based computer

Watford Electronics brings you a full specification IBM compatible PC card for the Archimedes. You no longer require the Archimedes PC Emulator, all PC software is run locally on the expansion card with custom written software to interface the PC card into the RISC OS environment. The expansion card is a full hardware implementation, with the ability to be turned into an ISA Bus, fully fledged 386 PC just by the addition of a power supply, keyboard, storage device and a monitor!

Processor

386SXL 33MHz low power processor. Socket for optional 387SX 33MHz numeric co-processor.

On Board Peripherals

- Uses 82C107 single chip solution.
- 128 bytes of battery backed CMOS RAM.
- AT compatible Keyboard Controller.
- Uses standard Archimedes keyboard and mouse. Full standard ISA 16 bit expansion bus available.
- Optional expander allows one or two half size PC cards to be installed in the adjacent Archimedes expansion slots.

Memory

- Uses 82C311 memory controller 2Mb zero wait state DRAM as standard, upgradable to 4Mb DRAM just by adding 4 more chips.
- Bank interleaving and page mode memory operation for maximum performance.
- On-board BIOS ROM.

Display Controller

- Hardware support for VGA with 512Kb of video memory.
- On board Quadtel VGA BIOS ROM.
- Multitasking screen display on RISC OS.
- Desktop can be achieved in software.
- Separate VGA monitor can be connected for simultaneous RISC OS and PC display or your Archimedes VGA compatible monitor can be used with optional video switch.
- Much faster and improved video speed compared to PC Emulator.

Hard & Floppy Disc

- Full background disk access, the Archimedes is not adversely affected.
- Any existing Acorn PC Emulator hard disk partition can be used, with the ability to create new PC hard disk partitions on any RISC OS hard disk.
- Optional IDE hard disk and floppy drive option for direct connection of a dedicated hard disk and floppy to PC card.
- Access to the Archimedes floppy disc drive for reading and writing of PC disc formats from PC.

Bundled Software

- MS DOS 5.0, Lotus Works and PC Organiser

Sound

- Uses the Archimedes internal speaker by connecting to the Auxiliary sound connector.

Enhancements

Optional expansion card will be available either hardware parallel and serial ports or the ability to connect an external AT style keyboard and mouse.

The PC card can also be plugged into a stand alone backplane to form the heart of a fully expandable, industry compatible 386SX computer, with no reliance upon the Archimedes.

Specifications may be subject to change. E&OE.

Call, fax or write now for more details!

Scan256 – The only sensible scanner purchase

Scan256 – the innovative 256 grey-level hand scanner for the Archimedes range of micro computers. It offers up to 256 grey levels at a maximum of 400 dpi, and comes complete with the most advanced and sophisticated 256 grey scale scanner software currently available for the Archimedes.

- Multiple copies of the image in memory at once.
- Allows multiple consecutive operations without having to save the original image to disk.
- Instant re-draw of all 4 image buffers.
- No re-calculations needed unlike other packages that use on the fly screen-dithering.
- Highly advanced dithering and image size reduction.
- Available via industry standard Change FSI package for maximum image quality. An invaluable aid to reduce the size of the image whilst maintaining maximum image quality.
- Advanced in-built image processing options.
- Convolution digital filtering fully implemented with over 100 filters covering edge detection, image enhancement and image smoothing. Enables high quality images to be obtained from poor quality scans.
- A unique L.E.D. indicator on the scanner.
- Shows you when the scanner is being moved at close to the maximum scanning speed, not just when it is too late and a scan line has been missed by moving the scanner too fast.
- Fully adjustable scale and size of image preview when scanning
- Hand held scanner image preview window can even be behind other windows and preview is shown in real-time with maximum number of grey-scales available.
- Support for The Serial Port Graphics Enhancer.
- Forthcoming support for the State Machine G8 Graphics Card.
- Allows up to 256 simultaneous grey scales on screen at once.
- True brightness, contrast and gamma correction.
- All can be specified by a value to exactly match monitor/printer. No guessing with shapes of curves and correction is mathematically correct.
- RISC OS 3 features.
- Include rotation and shearing. Scans normally are scanned at a slant rather than being rotated, shearing enables the scan to be corrected better than rotation.
- Fast RISC OS printing.
- Multiple options such as scale to page, centre, sideways selected area, and any scale.
- Scanner scans at an amazing 3ms per line.
- A post card at 400dpi takes only 7.3 seconds to scan, creating over 3Mb of data.
- Selectable scanning modes.
- 256 grey-scale, 256 grey-scale half width, 16 grey-scale and monochrome scanning modes. Half width mode enables longer 256 grey-scale scans to be achieved.
- Save image foreign formats.
- Save as industry standard TIFF for exporting to other systems, AIM for further processing, or RISC OS Sprite format.
- Single width, high quality podule using surface mount technology

The only sensible scanning and image processing solution for the Acorn Archimedes. Just compare the features, there can only be one choice...

Scan256 Scanner, Interface Card, Software and Manual Only £185

Please specify Archimedes type.
Not compatible with A3010, A3020, A4000

Call now for details about our new Scan256 Flatbed Professional Scanner

BBC Education Software

A vous la France	French programs for beginners	£29
Au restaurant/Accident de route	French games for 12 years +	£26
Bolougne and oh les	French program for beginners	£26
Computer control	Program simulating computer control	£26
Computers at work	Primary education program	£17
Espana Viva	Spanish educational programs	£20
Folks Tales	Listening and reading for ages 7+	£22
Geordie Racer	Look and read for ages 7+	£22
Hall of Mirrors	Practice word & number skills	£22
Help your child learn basic mapwork 2		£18
Inside Science	Four common science subjects	£22
Letters and pictures	Educational programs for 6-8 years	£15
Make a wildlife garden	Explore wildlife/weather/garden growth	£22
Maths with a story 1	Primary level maths programs	£20
Maths with a story 2	4 further maths programs	£20
Note invaders	Learn sheet music for 7-Adults	£15
Numbers & Pictures	Early number learning (4-6 years)	£15
Picture craft	Geometrical design & Colouring	£17
Puncman 1 & 2	Learning Punctuation (7-13 years)	£15
Puncman 3 & 4	Learning Punctuation (8-14 years)	£15
Puncman 5, 6 & 7	Learning Punctuation (8-15 years)	£15
Ramayana Tales	Simple Desktop Publisher using pictures & characters from the Ramayana	£22
Skyhunter	Look and read educational adventure	£22
Technology and design	Problem solving programs	£22
Through the dragons eye	Adventure game and Map reading	£22
Fun School 3 (Under 5)	Varied range of Education subjects	£17
Fun School 3 (5-7)	Varied range of Education subjects	£17
Fun School 3 (Over 7)	Varied range of Education subjects	£17

Archi Educational Software

- Animated Alphabet (3-6 yrs) £21
- Arcventure (8-12 yrs) £29
- Bookbinder £43
- Bumper Disc £14
- Bumper Disc 2 £14
- Craftshop 1 £26
- Craftshop 2 £26
- Converta-Key £16
- Data Word £16
- Desktop Stories £35
- DigiSim £35
- Dream Time (5-7 yrs) £23
- Farm (5-7 yrs) £19
- Fleet Street Phantom (9-13 yrs) £25
- Fun School 3 Red (up to 6 years) £17
- Fun School 3 Green (6-8 years) £17
- Fun School 3 Blue (8 years +) £17
- Gate Array Teaching System £68
- Glimpse Clip Art Utility (7-16 yrs) £8
- Highlighter (6-16 yrs) £42
- Jigsaw £28
- Mapventure (9-13 yrs) £24
- Microbugs £24
- Money Matters £16
- Nature Park Adventure (7-9 yrs) £27
- Numerator £60
- Picture Book £16
- Recall (6-13 yrs) £39
- Sellardore Tales £24
- Snippet £26
- Space Mission Mada (9-13 yrs) –
- Sting of the Dump (9-13 yrs) £22
- Target Maths £16
- Viewpoints (9-12 yrs) £33
- Wizard's Revenge (7-10 yrs) £17
- Worst Witch (7-10 yrs) £25

Archimedes Software

GRAPHICS		Mig 29	£24
3D Construction Kit	£39	Nebullus	£21
Arc Light	£46	Nevryon II	£20
ARCtist	£19	Omar Sharif's Bridge	£23
ARCticulate	£19	Pandoras Box	£18
Art Works	£139	Pipe Mania	£17
Atelier	£65	Play It Again Sam	£–
Artisan II	£45	Populous	£23
Artisan Gallery	£16	Puncman 1 & 2	£16
Autosketch II	£65	Puncman 3 & 4	£16
CADet (CAD)	£140	Pysanki	£14
Craftshop 1 & 2	£28	Quazer	£10
Euclid 2	£50	Real McCoy 2	£23
Graph Box	£59	Real McCoy 3	£22
Graphbox Professional	£107	Redshift	£14
HotLink Presenter	£40	Return to Doom	£16
Illusionist	£69	Repton 3	£14
Kermit	£46	Saloon Cars Deluxe	£27
Mogul	£17	Spitfire Fury	£22
Poster	£79	Splice	£25
Pro Artisan	£70	Sporting Triangles	£24
Prime Art	£69	Superior Golf	£14
Render Bender 2	£79	Superpool + Break 147	£22
Revelation 2	£80	Swiv	£19
Snippet	£21	Talisman	£12
Titler	£119	Timewatch	£24
Tween	£29	Trivial Pursuit	£22
		Twin World	£15
GAMES		U.I.M.	£23
Air Supremacy	£17	White Magic 2	£15
Apocalypse	£14	Worldscape	£16
Black Angel	£27	XFire	£19
Boogie Buggy	£14	Zelanites	£23
Break 147 + Supa Pool	£19	**Miscellaneous**	
Bughunter in Space	£19	Ancestry	£59
Cataclysm	£19	Arccomm 2	£38
Chess 3D	£16	Arcterm 7	£64
Chocks Away Compendium	£32	Armadeus Sound	£60
Chocks Away Extra	£14	Avante Garde Fonts	£23
Chuck Rock	£–	BBC DFS Reader	£6
Conqueror	£15	Broadcaster Loader	£65
Corruption	£18	Compression (CC)	£38
Cyber Chess	£38	Equasor	£38
Ego Repton 4	£–	FlexiFile	£97
Elite	£33	Genesis Plus	£68
Enter the Realm	£19	Genesis 2	£99
E-Type Compendium	£20	Investigator 2	£22
E-Type Designer	£13	Magpie 2	£42
Family Favourites	£13	Notate	£42
Galactic Dan	£19	Numerator	£66
Gods	£–	Pin Point	£65
Grievous Bodily Arm	£19	Presenter 2	£29
Holed Out Designer	£13	Presenter Story	£145
Holed Out Golf Comp	£20	Prophet	£132
Hostages	£14	Prophet Demo Disc	£10
Inter Dictor 2	£26	Rainforest	£17
Iron Lord	£15	Revelation 2	£95
Jahangir Khan Squash	£–	Rhapsody in Blue 2	£45
Jigsaw	£27	Score Draw	£46
Lemmings	£20	Show Page	£127
Oh no more Lemmings	£15	Speech!	£15
Lost Temple	POA	The Victorian	£17
Lotus Turbo Challenge	£19	Time Tabler	£549
Mad Prof Mariarti	£17	Toolkit (Clares)	£35
Masterbreak	£16	Touchtype	£40
Man at Arms	£14	Tracker	£39
MahJong Patience	£15	Turbo Driver BJ10E	£42
Manchester United II	£19	Vox Box	£46
		WorldScape	£17

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77 **£77 each**
Assembler; LISP; Prolog X **£149 each**

Desktop C	£199	Logotron Logo	£45
Macro Assembler	£40	Risc Basic	£120
Robo Logo	£69	Risc FORTH	£110
BASIC Compiler	£77	Cambridge Pascal	£95

Archimedes External Disc Drive Interface

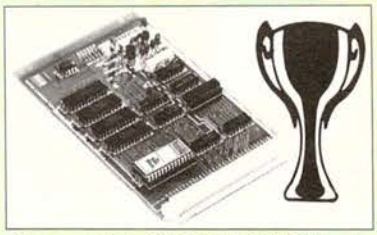
With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

Price £21

Back Plate Extension

- A300/400 **£15;**
- A3000 **£14**

Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £119

A Set of Colour Filters for colour image grabbing using a video camera **£16**

Archi Graphic Tablet

The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the useful addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

(Price includes Tablet, Leads, Software & Puck)
Stylus Optional Extra **£20**

Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£125**

Concept Keyboards

- A4 Standard Pack **£95**
- A4 Primary Pack **£100**
- A4 Designer Pack **£110**
- A3 Standard Pack **£99**
- A3 Primary Pack **£105**
- A3 Designer Pack **£110**

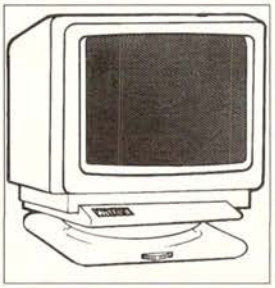
- Universal 2010 Keyboard A3 **£115**
- Universal 2010 Keyboard A4 **£110**

Cortian CKAI Interface

Eliminates the need to have a User port in A3000, A5000 and any other Archimedes without User Port. Fits to the Econet socket. **£29**

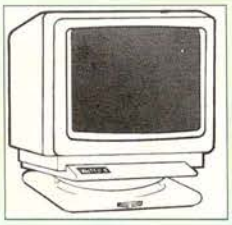
STAR BUY MONITOR

This attractively finished, etched screen medium res monitor is supplied complete with built-in speaker, volume control and video input. All controls are located on the front panel for ease of use.



Ideal for BBC, Archimedes and Amiga.

Only £149



FREE
Connecting lead with every monitor purchased from us. Please specify type required.

Microvitec Monitors

- **1431** – Standard Resolution Monitor #£169
- **1451** – Medium Resolution Monitor #£209
- **Cub3000** Medium Res for A3000 #£189
- Dust Cover for Microvitecs £5.50
- **Touchtec 501 Touch Screen** £239
- **Touchtec 3000** £–

Includes 3 years parts & labour warranty

Multiscan Colour

• Eizo F550i	£726	• Taxan 787	£225
• Eizo T560iT	£1319	• Taxan 787LR	£245
• Eizo T660i-T 20"	£1615	• Taxan 795PC	£415
• NEC 3FG	£345	• Taxan 875	£715
• NEC 4FG	£442	• Taxan 875+	£745
• NEC 5FG	£827	• Taxan 970	£1195
• NEC 6FG	£1485	• VIDC Enhancer	£25

Aries AlphaScan Monitor

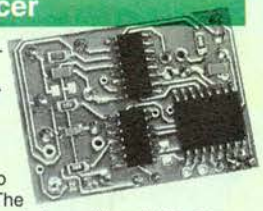
Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The VIDC Adaptor supplied with the monitor allows high resolution operation in all screen modes. **£325**

- Aries Alphascan 17" Plus £545

Philips Monitors

- **BM7502** 12" Hi-res Green Monitor £82
- **CM8833** 14" Med. Res Colour Monitor £185
- Dust Cover for Philips Monitors £6
- Spare Monitor Leads (various) £7

VIDC Enhancer



This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A Desk Top application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: Its unique design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control **£45**

MultiVideo VIDC Card: As above but for MultiScan monitors only. **£25**

Integrex Ink Jet Printers

- Colour Jet 132 Printer £425
- Paper Roll £6.50
- BBC Screen Dump Software £10
- Colour Cartridge **£21** • Black Cartridge **£12.40**
- 100 A4 OHP transparencies £55
- 8K Serial Interface Optional £123
- Colour Jet 2000 £529
- Betajet Ink Jet Printer £185
- Betajet Cut Sheet Feeder £43
- Integrex Colourjet Series 2 **£POA**

Star Printers

LC15	£168	LC200 Colour	£140
LC20	£99	SJ48 Inkjet	£160
LC100 Colour	£136	XB24-200 Colour	*£288
LC24-15	£233	XB24-250 Colour	*£350
LC24-20	£148	XB24 Colour kit	£29
LC24-100	£162	ZA200 Colour	*£230
LC24-200	£162	ZA250	*£295
LC24-200 Colour	£205		

- Star/Archimedes Colour Printer Driver £15

* Includes 12 months On-site warranty

Cut Sheet Feeder

LC10/200/24-10	£65	LC15/LC24-15	£125
XB24-10	£80	XB24-15	£139
XB24-200	£99	XB24-250	£149

Serial Interfaces

8K Ser LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15 **£52**

Buffers

32K Ram Card for LC/XB24-10; 15; LC200 **£55**
32K Ram Cartridge for LC24 **£54**

Star Printer Ribbons

LC10; LC10-II; LC15	Black **£4;**	Colour **£6**
LC-200; LC24-200	Black **£5;**	Colour **£12**
XB24-10; XB24-15	Black **£5;**	Colour **£12**

- Dust Covers for Star Printers £6

NEC Pinwriter Printers

• P20#	£169	• P70	£396
• P30	£235	• P90	£603
• P60	£322		

- P60/70 Colour Option Kit £59
- Ribbons Black for P20/30 **£6** for P60/70/90 **£7**
- Ribbons for P60/70/90 Black **£9** Colour **£13.50**

Includes 12 months on-site warranty

Cut Sheet Feeders

P20 **£59;** P30 **£85;** P60 **£89;** P70/90 **£80**

Panasonic Printers

KX-P1123	£126	KX-P2123M	£165
KX-P1170	£98	KX-P2123C	£195
KX-P1624	£250	KX-P2180M	£127
KX-P1654	*£330	KX-P2180C	£145
KX-P1695	£267	Colour Kit for KX P2123M/2180M	£38
KX-P2124	£POA		
KX-P2624	*£268		

*** Price includes 12 months On-site warranty**

Cut Sheet Feeders

P36 – 1124/24i **£79** **P37** – 1123/70/80 **£69**
P38 – P1624/95; P2624 **£129**

Buffers

P12 4K Buffer Board for KX-P1081 **£55**
P14 32K Buffer P1123/24/70/80 P1540/92/95; P1624/54/95 **£16**

Serial Interfaces

P13 for all above printers **£49**

Original Panasonic Ribbons

Guaranteed to last 3 million characters

P110 for KX-P1081, 1592 & 1595 **£6**
P115 for KX-P1180 **£7** **P145** for KX-P1124 **£7**
P140 for KX-P1540 **£8** **P155** for P1624/2624 **£8**
Colour Ribbons for KX-P1081, 1592 & 1595 Brown, Blue or Red **£9 each**
P150C Colour for P2123/2180 **£15**

Citizen Printers

• 120D+	£98	• Swift 200	£178
• Swift 9	£145	• Swift 240	£200
• Swift 9X	£190	• Swift 240C	£212
• PN-48	£199	• Swift 24X	£295

- AH29804 Manual Cut Sheet Feeder for Swift 9/24/124. Holds 50 Sheets £29

\+ FREE 2 years Parts and Labour warranty on all Citizen Printers

- Swift 9 Colour Option £19
- Swift 24 Colour Option £29
- Swift 24 Ribbons Black **£4** Colour **£13**
- Swift 24X Ribbons Black **£8** Colour **£16**
- Citizen/Archimedes Colour Printer Driver £15

Laser Printers

All Laser Printers include 12 months On-site maintenance

Brother HL4-VE	4ppm	£549
Brother HL4-PS Postscript	4ppm	£970
Brother HL8-V	8ppm	£894
Brother HL-10V	10ppm	£1059
Brother HL10PS	10ppm	£1329
Brother HL10DV	10ppm	£1149
Brother HL10DPS	10ppm	£1449
Canon LBP4 LITE	4ppm	£479
Canon LBP4+ 1.5M RAM	4ppm	£632
Canon LBP-8III Plus	8ppm	£945
Canon LBP-8 plus IIIR	8ppm	£1435
Epson EPL4300	6ppm	£566
Epson EPL4000	6ppm	£475
Epson EPL7500	6ppm	£1139
Epson EPL8100	10ppm	£920
Fujitsu VM800 (Best Buy)	8ppm	£685
HP Laserjet IIP+	4ppm	£530
HP Laserjet IIID	8ppm	£1487
HP Laserjet IIIP	4ppm	£595
HP Laserjet IIISi PS	16ppm	£2419
HP Laserjet IV (600 dpi)	8ppm	£989
HP Laserjet 4M PS	8ppm	£1369
NEC Silentwriter S62P P/script	6ppm	£1019
NEC Silentwriter 266	8ppm	£669
NEC Silentwriter 290P P/script	8ppm	£1369
NEC Silentwriter S102	8ppm	£989
OKI OL400	4ppm	£440
Panasonic KX-P4410	5ppm*	£465
Panasonic KX-P4420	8ppm*	£615
Panasonic KX-P4430 Satin Print*	5ppm*	£586
Panasonic KX-P4451	11ppm*	£993
Panasonic KX-P4455 Postscript	11ppm*	£1249
Star LP-8 III 2	8ppm	£1249
Star LP-8 III	8ppm	£890
Star LP-8 Star(post)script	8ppm	£1130
Star LP-4	4ppm	£565
Star LP-4 Mk 3	4ppm	£589
Star LP-4PS Postscript	4ppm	£769

* Now with 2 years On-site warranty

Laser Toners

Canon 2, 3 & 4	£46	Star LP4/LP8	£56
Epson GQ	£13	KX-P4420/30	£24
EPL 4100	£69	Laserjet HP IIP & IIIP	£42
EPL7100/7500/ 8100	£125	Laserjet II/D, III/D	£48
HP 4	£75	Qume Crystal (3)	£58

Laser RAM Upgrades

IIP; III/P 1Mb	£49	Canon LBP8 2M	£125
IIP; III/P 2Mb	£80	EPL7100 256K	£39
IIP; III/P 4Mb	£132	GQ5000 512K	£42
II & IID 1Mb	£60	KX4420/50i 1M	£75
II & IID 2Mb	£96	KX4420/50i 2M	£115
II & IID 4Mb	£142	KX4420/50i 4M	£195
HP4 1Mb	£65	Star LP8 1M	£139
Canon LBP4 1M	£105	Star LP8 2M	£275

Laser Drum & Developer

• Epson Drum	GQ5000	£93	EPL7100	£129
• Panasonic 4420 Drum		£60	Developer	£59
• Panasonic 4450 Drum		£93	Developer	£80
• Qume Drum		£76		

Jetpage Postscript Cartridge

- HP IIP/III £225 IID & IIID £227

Various Add-Ons

- HP Adobe Postscript + Cartridge £359
- HP Premier Font Collection £28
- Laserjet various Font cartridges from £45
- Canon LBP-4 Lower Cassette Tray £75
- Pacific Page Postscript £259

Laser Direct

- Special High Res Card 600 DPI for Canon LPB 4 & LPB 8 Laser Printers **£315**
- LPB 4 Printer plus High Res Card **£945**
- LPB 8III Printer plus High Res Card **£1275**
- LPB 4 Optional Paper Tray **£79**

Hewlett-Packard Printers

DeskJet 500	#£255	DJ500 colour	#£325
DJ550 colour	#£415	Paint Jet	+£495
Paint Jet XL	+£1045	PaintJet XL300	+£1775
QuietJet	+£293	PJet XL300 PS	£2619

+ Includes 12 months on-site warranty
# Includes 3 years extended parts & labour warranty
- For additional £50, (£75 for DJ500 & 550 colour), we will convert above 3 years warranty, to 3 years on-site maintenance warranty

- DeskJet 500 Cart. Black **£14;** Colour **£23**
- Paintjet Cartridges Black **£19;** Colour **£23**

Desk Jet 500 Accessories

- 256K RAM Cartridge **£69**
- HP Epson FX Emulation Cartridge **£59**
- High Capacity Black Ink Cartridge **£21**
- 50 x A4 Transparencies **£32**
- DJ500 Colour Archimedes Printer Driver **£15**
- Dust Cover **£6**
- DJ500 does not require Archimedes Driver

Plug In Font Cartridges for DJ 500

- 22706B – Prestige, Elite, Line Draw fonts **£55**
- 22706C Letter Gothic & HP Line Draw fonts **£56**
- 22707P – Proprint Emulation Cartridge **£57**
- Desk Jet Unlimited (Book No VAT) **£19.75**

Canon Bubblejet Printers

	Printer	CSF	D'ble Bin	Ink Cart
BJ10EX	£160	£43	–	£16
BJ20	£248	–	–	£16
BJ200	£275	–	–	£16
BJ300*	£335	£88	£65	£12
BJ330*	£373	£110	£79	£12
BJC800C	£1355	–	–	£16

* Includes 12 months On-site warranty

- Spare Battery pack for BJ10E **£33**
- BJ10EX – Archi Turbo Driver **£42**

Special Offer:
Canon BJ10EX Printer + CC's Turbo Driver **£199**

Epson Printers

FX870	£238	LQ1170	£429
FX1050	£322	LQ2550+	£669
FX1070	£322	LX100	£117
FX1170	£POA	LX400	£90
LQ100	£144	LX850+	£134
LQ570	£197	LX1050	£199
LQ870	£352	SQ870	£409
LQ1060 Colour	£588	SQ1170	£560
LQ1070	£308		

- Tractor Feed for LQ100 **£29**
- Original Ribbon for LQ100 **£6**

Cut Sheet Feeders for

LQ570, LQ870 **£47**
LX400/850/LQ200/400/450/500/550 LQ1010/1070/1170 **£72**
LX1050 **£115** FX850/LQ860 **£128**
FX1050/LQ1060/SQ850 **£155**
LQ2550 **£299** SQ2550 **£210**

Tractor Feed for

LQ800 **£44;** LQ850/FX850 **£69;** LQ1050/FX1050 **£85;** LQ2500 **£90;** LQ2550 **£90.**

Accessories

- EX800/1000 Colour Option **£45**
- EX800/1000 Colour Ribbon **£14**
- LQ2500 Colour Option **£65**
- Multifont Card for LQ550/850/1050 **£95**

Epson Printer Interfaces

RS232 **£28** RS232 + 2K Buffer **£52**

Printer Leads

BBC Centronics 4' long	£5
BBC Centronics 6' extra long	£7
Compact's Special Centronics Lead	£7
Nimbus Centronics Lead	£6
IBM/Archimedes Parallel Lead 6'	£5
IBM/Archimedes Parallel Lead 5 metres	£10
IBM/Archimedes Parallel Lead 10 metres	£15
Double Ended 36 way Centronics Lead 4'	£7
Double Ended 36 way Centronics Lead 6'	£9
RS232 Leads (Various)	P.O.A.

Roland Plotters

- DXY1100 **£488** • DXY1200 **£620**
- DXY1300 **£825** • DXY2500 **£2345**
- Sketchmate A3 **£499** • Sketchmate A4 **£308**
- Roland plotter Pens, Fibre tip **£7.50**

Fujitsu Printers

Special Introductory Offer

- B-100 InkJet – HP Deskjet compatible 300dpi, whisper-quiet & 6 resident fonts **#£175**
- B-200 InkJet – HP Desk Jet compatible 300dpi. Built in Cut Sheet Feeder. Optional 2nd Bin/Tractor available **#£249**
- DL-1100 Dot Matrix – 24 pin, 110 column Colour optional **£199**
- DL-1100C Dot Matrix – 24 pin, 110 column With colour option **£235**
- VM-800 Laser – 8 page per minute, Laserjet 3 compatible, 350 sheet paper tray, Resolution enhancement **#£685**

FREE 1 Year On-site maintenance, within mainland UK

- B-100 Cut Sheet Feeder **£59**
- B-200 2nd Bin Sheet Feeder **£89**
- B-200 Tractor Unit **£59**
- B-100/200 Ink Cartridges **£14**
- DL-1100 Colour Upgrade **£39**
- DL-1100 Black Ribbon **£5**
- DL-1100 Colour Ribbon **£11**
- VM 800 Toner Cartridge (8000 pgs) **£99**

Full range of Fujitsu Printers available at very competitive prices. Please telephone for details

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold Paper **£7**
- 2,000 Sheets 9.5" x 11" Fanfold Paper **£11**
- 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold **£21**
- 1,000 Sheets 15" x 11" Fanfold Paper **£9**
- 2,000 Sheets 15" x 11" Fanfold Paper **£16**
- 1,000 Sheets true A4 Fanfold Paper 70gms **£11**
- 2,000 Sheets true A4 Fanfold Paper 70gms **£21**
- Telex Roll 50 metre **£3**

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 off, 90 x 36mm (Single Row)	£6.00
1,000 off, 90 x 36mm (Twin Row)	£6.25
1,000 off, 90 x 49mm (Twin Row)	£7.50
1,000 off, 102 x 36mm (Twin Row)	£6.75

Laser Printer Labels on A4 Sheets

3750 off, 70 x 29mm (3 Rows x 10)	£15.50
2400 off, 70 x 37mm (3 Rows x 8)	£15.25

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC B/BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£3.25	£5.00
DMP2000/4000	£3.75	£4.95
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£12.00	–
LX80/86	£2.75	£4.50
LX400/800/850	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£6.00	£5.00
Panasonic KX-P1124	£7.00	£5.00
Star LC24-10	£2.95	£6.00

Professional Printer Stand

The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29(carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
• 2 to 1	£12	£13
• 3 to 1	£16	£18
• 4 to 1	£23	£24

Professional Type

Connects	Serial	Parallel
• 2 to 1	£17	£18
• 3 to 1	£22	£25
• 5 to 1	£34	£38

Cables extra at £6 each

Cross Over Manual Switch

2 In/2 Out Parallel	£29
2 In/2 Out Serial	£28
3 In/2 Out Serial	£36

Auto Printer Sharer

Connects	Serial	Parallel
2 to 1	£40	£45
4 to 1	£62	£49
8 to 1	–	£89

256k Multi Spooler

These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

- 2 In/2 out **£135** • 4 In/2 out **£169**
- 8 In/1 out **£199**

Compact Converter Units

Serial to Parallel **£36** Parallel to Serial **£37**

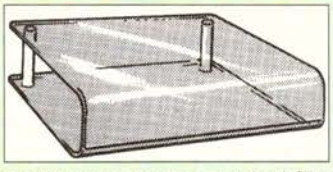
Plinths for the BBC B, BBC Master & A3000

Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

• Single BBC Plinth	420 x 310 x 105mm	£13
• Double BBC Plinth	420 x 310 x 210mm	£24
• Single Master Plinth	490 x 310 x 105mm	£14
• Double Master Plinth	490 x 310 x 210mm	£26

- A3000 Single Plinth (very sturdy & precision made), has a slot on the left for the switch & cut out on the right for 3.5" Disc Drive **£15**

Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version **£16** (carr £3)
136 Column version **£20** (carr £4)

Continued→ → → → → → → → →

QUEST MOUSE Mk III

- Quest Mouse III & Quest Paint £49
- Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont £69
- Quest Mouse III only £25
- Quest Paint Software only £28
- Quest Font Disc (22 Text Fonts) £15
- Quest Mouse Mat (Red or Blue or Green please specify) £3
- Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer £18
  (P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

ConQuest

Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

ConQuest ROM Package £28
(Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact)
(P.S. Conquest is a Quest Paint extension ROM).

Mouse Cleaning Kit

To obtain trouble free operation and prolong the life of your mouse, the high tech rodent requires regular cleaning. Our deluxe mouse cleaning kit is ideal for the purpose £3

BEEB VIDEO DIGITISER

"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro.

Winter Sale Price £75

(BBC B, B+ and Master 128 compatible, except Master with Econet)

(Price includes: Digitiser Unit, Software in ROM & a Comprehensive Manual)

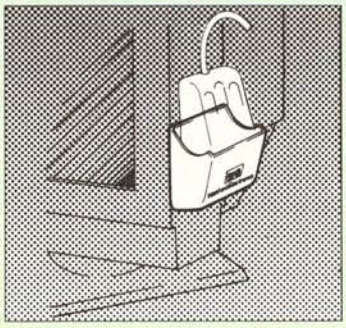
Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

Mk III AMX MOUSE

- **AMX Mouse plus Super Art £49**
  (Please specify for BBC, Master or Compact)
- AMX MOUSE ONLY £25
- AMX SUPERART Package £26
- AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse £25
- PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker £13
- AMX DESIGN (ROM) £29
- AMX EXTRA EXTRA £16
- MOUSE MAT £3

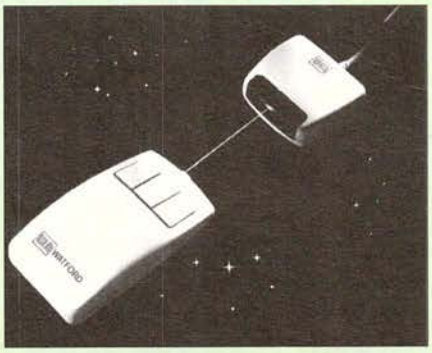
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive etc.

Only £3

Archi Cordless Mouse



Features
- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

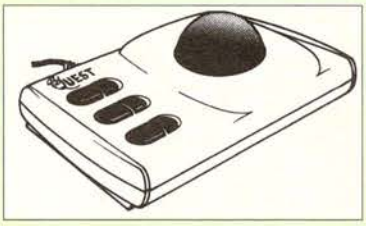
Price £39

VISA

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

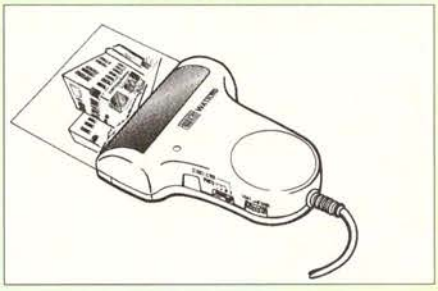
Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version £25
QT-20 Archimedes Version £26

Beeb Hand Scanner



Watford Beeb HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs!

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware **£99**

Archi Mk II Hand Scanner

Watford's Mk II hand scanner has a maximum resolution of 400 dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include Cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting. X and Y flip. Edge detection which turns solid objects into outlines.
Images can be printed on any printer supported by RISC OS.
On-screen help is provided via the RiscOS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version £109
AHS-3 Archi A3000 Version £119

Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, eclipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be – it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individully proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.
Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack £49
Wapping Editor plus Mouse £69

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc.
Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages laid out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are two Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions.

£12

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only).

£13

Archi A4 Scanner

This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs.
The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.
Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.
All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

Archi A4 Scanner	£269
Sheet Feeder for above	£75
Scanner + Sheet Feeder	£359

Z88 Portable Micro

• Z88 Portable Micro	£169
• 32K RAM Pack or 32K EPROM Pack	£16
• 128K RAM Pack or 128K EPROM Pack	£32
• 512K RAM Pack	£86
• 256K Eprom Pack	£55
• Z88 Eprom Eraser Unit	£38
• Z88 Carrying Case	£8
• AA Nicad Rechargeable Battery	£1.50
• Battery Charger Compact & Fast	£6
• Z88 Serial Printer Cable	£8
• Z88 Parallel Printer Cable	£18
• Z88 to Archi Link	£15
• Z88 to BBC Link £8	• Z BASE £56
• Z88 to PC Link II £27	• Z88 to Macintosh £32
• Z88 Mains Adaptor £9	• Z88 Modem £114

Psion Series III

Psion, pioneer of the handheld computer, have once again redefined the state-of-the-art with the Series III. Although only pocket sized, this powerful programmable computer has many features found in desk top machines, plus powerful built-in software. They include a full specification wordprocessor and an outliner that is compatible with Microsoft Word, an extensive database, intelligent time and personal management and a powerful multifunction calculator. And with an interchangeable memory of up to 4Mb, you'll never be short of data storage space.

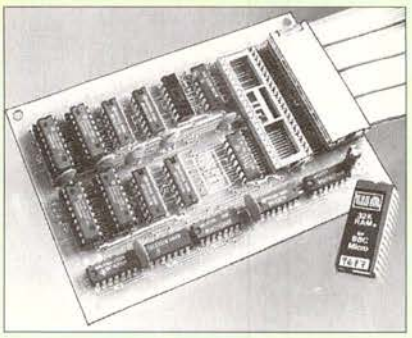
Psion Series III Computer

• Series 3 128K	£139
• Series 3 256K	£179

CREDIT CARD 24 HOUR Ansaphone Hot Lines (0923) 250234 or 233383

Continued→ → → → → → → → →

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.
- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.
- Use the full 32k or the bottom 12K of the expansion RAM as a printer Buffer. (P.S. Only 12K printer buffer can be used with Wordwise & WW+, due to the way they are written).
- Unique facility to turn ROMs off and on again.

Only £49

Commander Joystick

Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

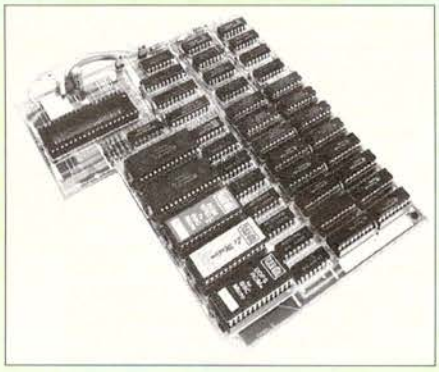
Price: £15

(PC version of above joystick available at **£16**)

Voltmace Joysticks

Delta 3B Single Joystick	**£10**
Delta 3B Twin Joysticks	£15
Delta 14B Single Joystick	£11
Delta-Cat A mouse eliminator Joystick for the Archimedes	£24
Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128	£25

ROM/RAM Card



- No Soldering required to fit the board.
- Compatible with BBC B
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).

PRICES:

- ROM/RAM card with 32k DRAM **£39**
- ROM/RAM card with 64k DRAM **£52**
- ROM/RAM card with 128k DRAM **£83**

OPTIONAL EXTRAS:

- 16k plug-in Static RAM kit **£8**
- 16k DRAM for Upgrade **£13**
- Battery backup **£3**
- Read and Write protect switches **£2 each**

Complete ROM-RAM card with all options fitted **£99**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage translent spikes/surges caused by lightning or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket

4 way top quality mains trailing sockets.
Supplied wired up with mains plug ready for use.
Can be screwed to floor or wall if required.
Very useful for tidying up all the mains leads from your peripherals.

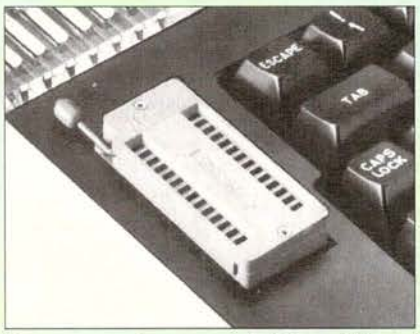
£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

£16

Sideways ROM ZIF Socket System



Allows you to change your ROMs quickly and efficiently, without having to open the lid. The ZIF socket is located into the ROM Cartridge's position. It is very simple to install. No soldering required. Also included in the price is a plastic see through storage case with antistatic lining, which allows you to store 12 ROMs.

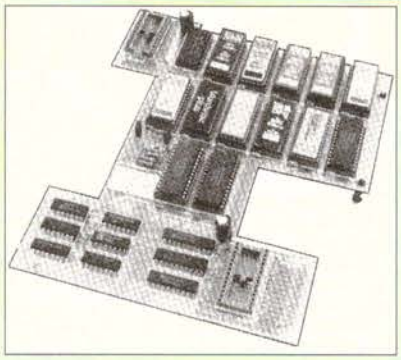
£18

ROM Cartridges for the BBC Master

Will accept the larger Piggy Back ROMs like Interword, Quest, etc.

- Twin **£8;** • Quad **£13**

Solderless Sideways ROM Socket Board



- Increases your BBC Micro's ROM capacity from 4 to 16.
- **No soldering required.**
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish" allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £32

Battery Backup fitted **£35**

Battery Backup only **£3**

16K Sideways RAM **£8**

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00;** Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	50p	75p
RS423 (5 pin Domino)	70p	80p
Cassette (7 pin DIN)	40p	95p
ECONET (5 pin DIN)	35p	50p
Paddles (15 pin 'D')	150p	250p
Disc Drive Plug 4 way	100p	–
6 way Power Connector	120p	150p

Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

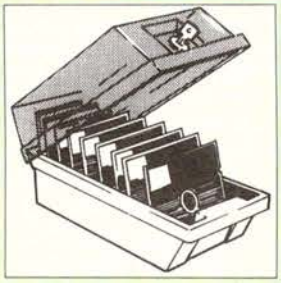
Watford POWER DUCK **£8**

VISA Access

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 250234 or 233383

All Prices Exclusive of VAT

Antistatic Lockable Disc Storage Units



- **M35** – holds up to 50 5.25" discs **£4.95**
- **M85** – holds up to 95 5.25" discs **£6.95**
- **M25*** – holds up to 25 3.5" discs **£4.95**
- **M50** – holds 50 3.5" discs **£6.50**
- **M100** – holds 100 3.5" discs **£6.99**
- **M10** – holds 8 of No. 10 Data Cartridges **£15**

* Not lockable

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: **£2**

3M – Diskettes

Lifetime warranty on 3M Discs

- *10 x 5.25" S/S D/D 40T (744)* **£5**
- *10 x 5.25" D/S D/D 40T (745)* **£5**
- *10 x 5.25" S/S D/D 80 Track (746)* **£6**
- *10 x 5.25" D/S D/D 80 Track (747)* **£7**
- *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT* **£8**
- *10 x 3.5" S/S D/D 40/80 Track* **£6**
- *10 x 3.5" D/S D/D 40/80 Track* **£6**
- *10 x 3.5" Double Sided High Density* **£10**

Top Quality Diskettes

Watford's life time guaranteed disc are supplied complete with self stick labels & plastic library case.

- *10 x **M3** 3.5" D/S D/D 80 Track* **£6**
- *10 x **M9** 3.5" D/S High Density* **£10**
- *10 x **M4** 5.25" S/S D/D 40 Track* **£5**
- *10 x **M5** 5.25" D/S D/D 40 Track* **£5**
- *10 x **M7** 5.25" D/S D/D 80 Track* **£6**
- *10 x **M8** 5.25" D/S H/D Hi-Density* **£9**
- ***M2** 3" Double Sided* **£2.50** *each*

Special Bulk Offer Discs

(Lifetime warranty on Discs)

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	£25	£30	£35
• With Sleeves 5.25"	£28	£33	£38
• 3.5" D/S D/D	£21 for 50	£39 for 100	
• 3.5" D/S H/D	£40 for 50	£75 for 100	

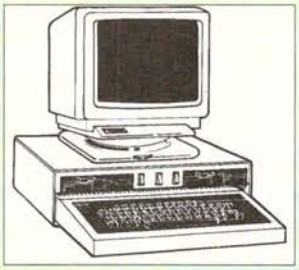
3.5" Disc Drive

These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
• **CLS35:**	Single Disc Drive, 400K	**£59**
• **CLD35:**	Twin Disc Drives, 800K	**£109**
	Disc Drive with PSU	
• **CS35:**	Single Disc Drive, 400K	**£82**
• **CD35:**	Twin Disc Drives, 800K	**£126**

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drives in Monitor Stand



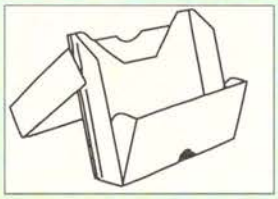
• **CDPM 800S** – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

• **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5".

£154

Plastic Library Cases



- **DLC1** – Holds 5 x 3.5" Discs. **£1.50**
- **DLC2** – Holds 10 x 3.5" Discs. **£1.90**
- **DLC3** – Holds 5 x 5.25" Discs. **£1.60**
- **DLC4** – Holds 10 x 5.25" Discs. **£2.00**

Disc Albums

Attractively finished in leather-look PVC Vinyl

- **DW1** – Holds 6 x 3.5" Discs **£2.50**
- **DW2** – Holds 6 x 5.25" Discs **£3.00**
- **DW3** – Holds 20 x 5.25" Discs **£3.50**
- **DW4** – Holds 40 x 3.5" Discs or 5.25" Discs **£4.50**

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Acorn & Watford DFSs

- Watford sophisticated DFS ROM **£16.00**
- Watford DFS Kit complete **£49.00**
- DFS Manual (comprehensive) **£6.95**
- Acorn DNFS ROM **£17.00**
- Acorn ADFS ROM only **£25.00**
- Acorn 1772 DFS ROM Kit **£49.00**
- Acorn DFS Kit complete **£48**

Watford's MkII 1772

Single/Double Density DFS

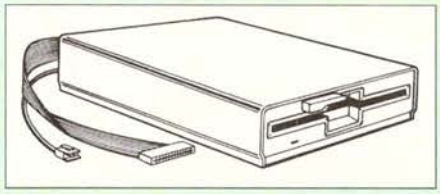
Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

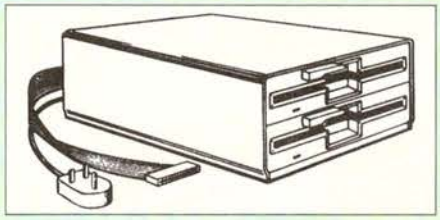
- Complete Kit Special Price **£44**
- DDFS Manual (No VAT) **£6.95**
- We will exchange your existing DFS Kit for our sophisticated DDFS for only **£26**

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).
P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
• **CLS400S:**	Single, 40/80 track 400K Double sided Drive	**£70**
• **CLD800S:**	Twin, 40/80 track, 800K Double sided Drives	**£138**
	Disc Drive with PSU	
• **CS400S:**	Single, 40/80 track, 400K Double sided Drive	**£80**
• **CD800S:**	Twin, 40/80 track, 800K Double sided Drives	**£149**

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Continued→ → → → → → → → →

Computer Concept's ROMS

Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42

Wordwise plus

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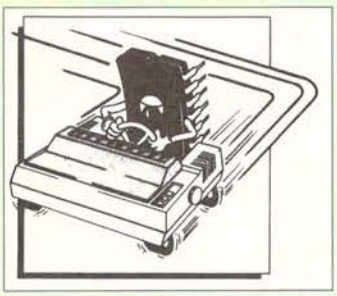

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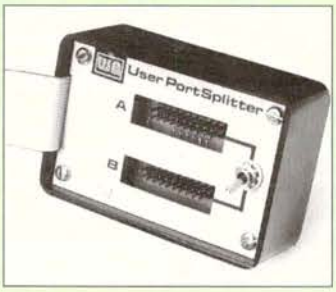

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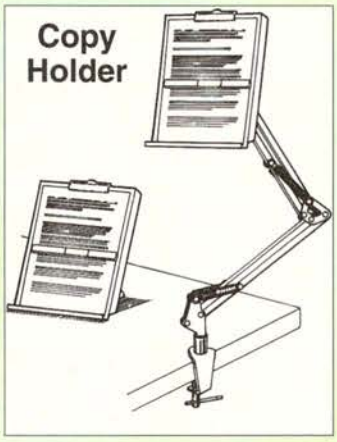

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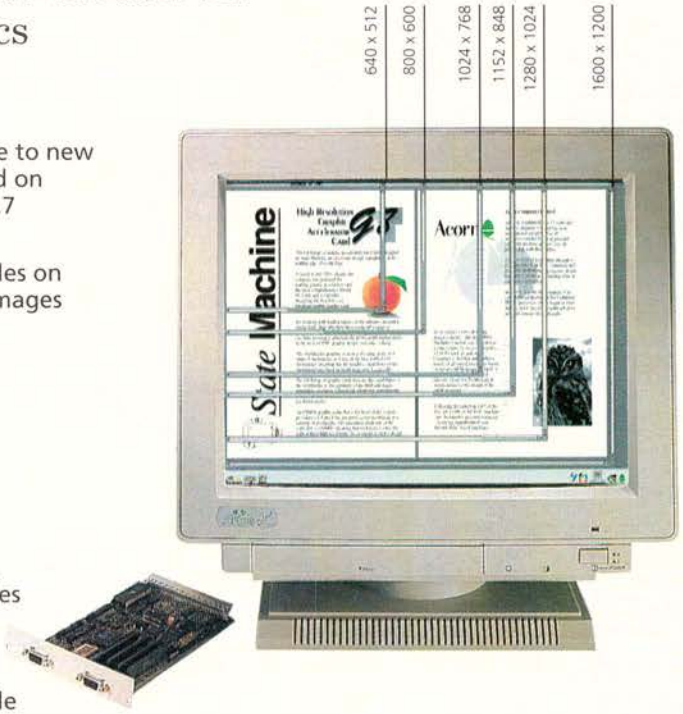
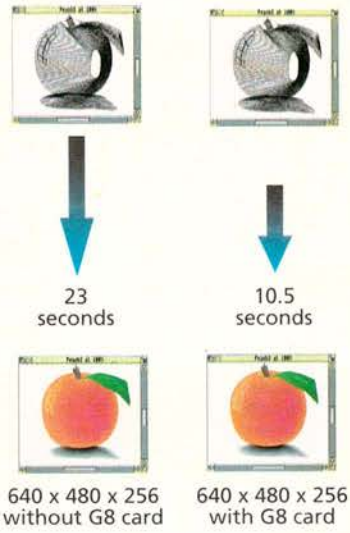
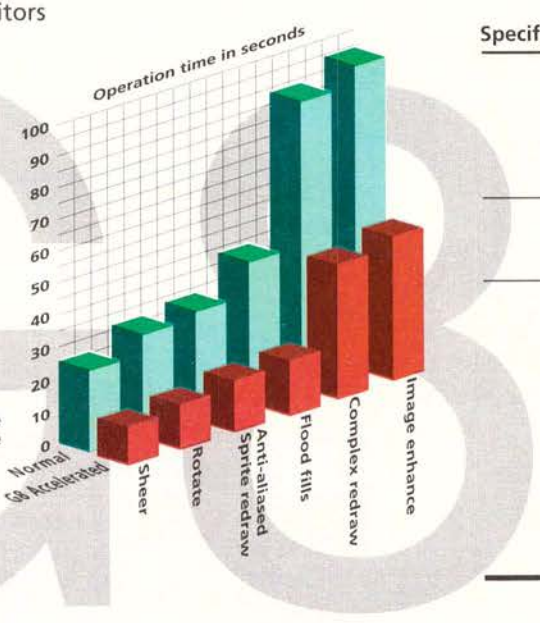


Performance test on A440/1, ARM2





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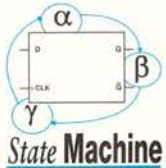

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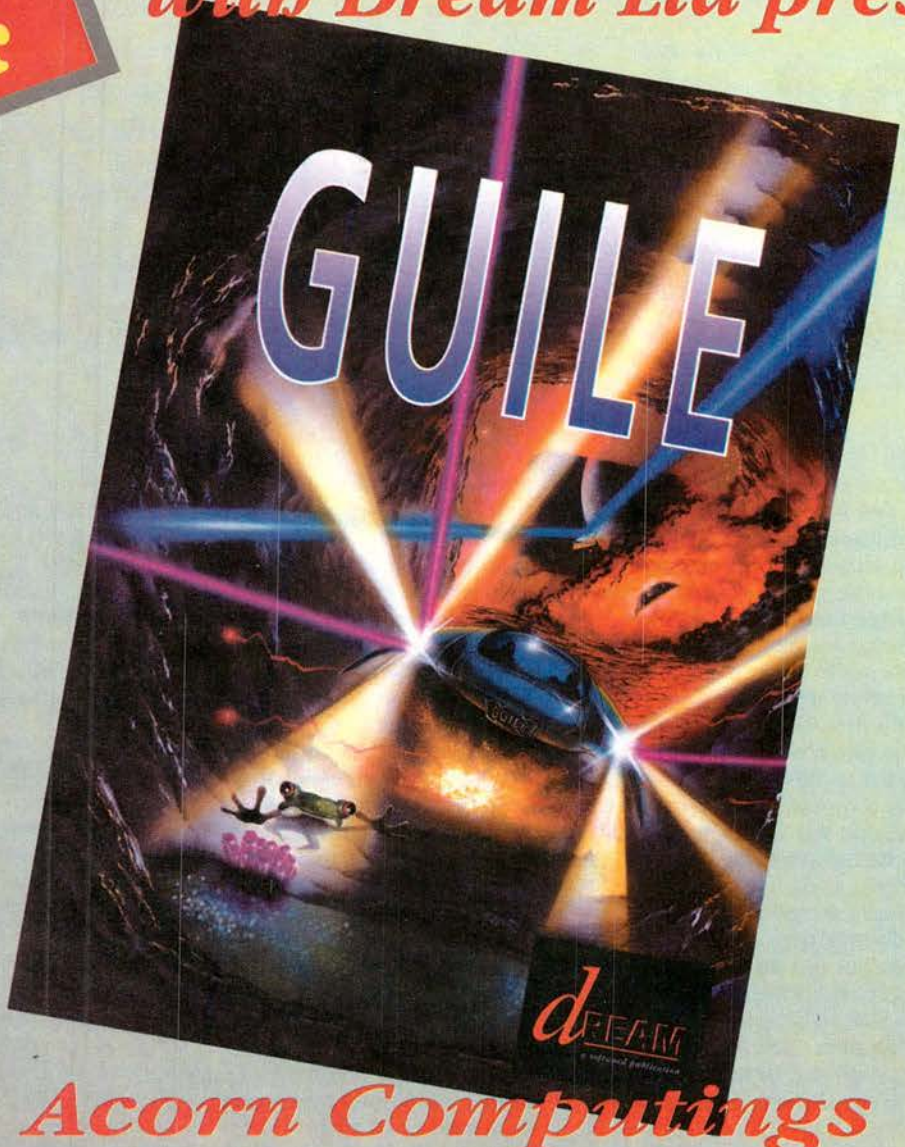

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Size counts

COOO! Look at the size of those! A few years back that was a familiar cry of astonishment upon witnessing the staggering size of the sprites in some games as programmers stretched the performance of their 8-bit machines to the limit.

Not only were these sprites big but they moved swiftly over complicated backgrounds left intact after the sprite had passed. With the 32-bit computers now in our possession it is no longer necessary to write complicated machine code listings to do this because these routines are built into the sprite handling system.

Don't be put off using these excellent facilities by *purists* who insist that to be serious about writing games you must, of course, write your own sprite handler. Some of the best dedicated sprite routines written have ended up incorporated in the most boring and terrible games.

If you have the imagination and your game is good and playable fun, then it matters little whether you use Basic, machine code or finger paints to produce it – don't forget how powerful 32-bit computing is!

Getting back to size, it's really quite easy to scale your sprites once you've found Acorn's equivalent of the Rosetta Stone. Using all my investigative powers and reference books it only took me six months to amalgamate the requisite commands and calls into a coherent whole!

Thank you Acorn for providing the best computer adventure game I've played in years: *Sprite Trek III – The Search for Clear Instructions* spread over six volumes bought by many, understood by few and correlated by nobody.

So, get yourself a sprite drawn in !Paint and use the program, Scale (on the subs disk), making sure you amend the spritefile and sprite names to your own creations. The bit we are interested in here is that in order to scale your sprite you must first DIMension some memory space for the scaling factors to be poked into:

```
590 DIM scale% 16
```

Basically we can alter the sprite size in width, the X scale if you like, and in height, the Y scale. If you take each of the two scales and look at them as fractions the picture becomes so much clearer.

Look at lines 610-640. You can see that I've used variables A and C to determine the X scale and variables B and D for the Y scale. They are set out like fractions because what you are actually altering is size in the form of a ratio. These variables are then poked to the allocated scaling area *scale%* at lines 660-690, and we add the address of this memory block as an additional parameter to our sprite plotting at line 590.

Obviously 1 over 1 is the normal (default) sprite size – try changing A = 1 to A = 8 and the sprite's width will increase eight fold. Try altering the Y scale to B = 8 and the sprite will be eight times as big all round. You can use these keys to alter the size while the program is running:

```
Z,X   = X scale
P,L   = Y scale
```

By altering the bottom half of the fraction you can make the sprite smaller so just think of it this way for example – if you want a sprite two thirds size, alter both sets of parameters to 2 over 3 like this:

X scale	Y scale
A = 2	B = 2
C = 3	D = 3

Or twice as tall but half the width:

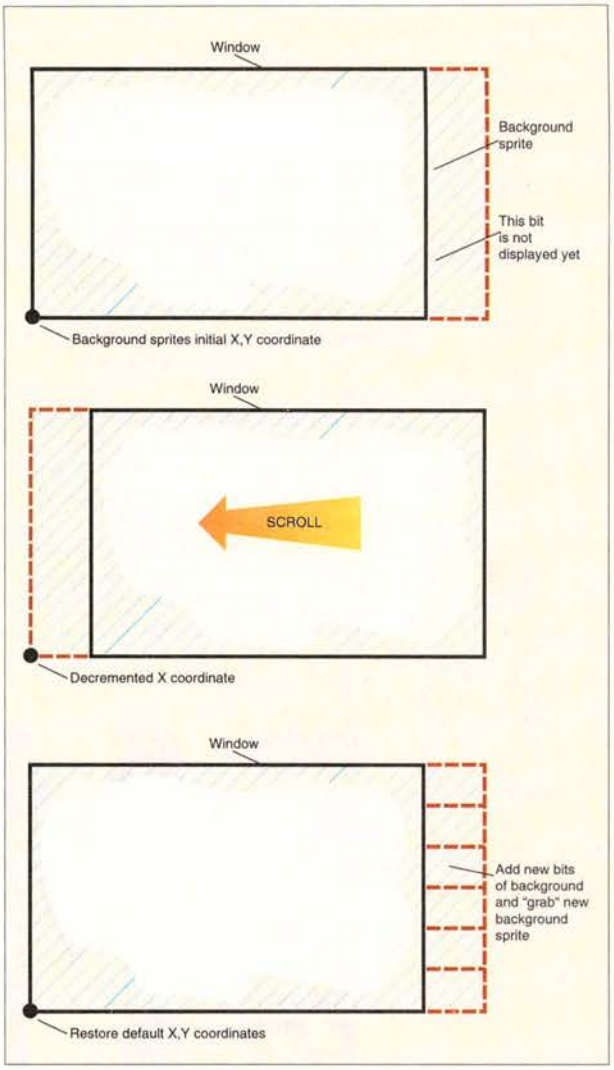
X scale	Y scale
A = 1	B = 2
C = 2	D = 1

Well that's about the size of that, now let's have a look at another bug-bear for past 8-bit users – screen scrolling.

On the BBC Micro hardware scrolling enabled the entire screen to be whipped left or right and up and down at lightning speed. But if that had been all there was to it everyone would have been able to make a decent sideways scrolling shoot-'em-up before breakfast.

What a let down it was to find out that when you scrolled left the screen returns on the right one line up. Yes, that was when over 90 per cent of us gave up. And despite programmers keeping a track of the screen start address and plotting new background to the right of the screen I can only think of half a dozen commercial games at best that were anywhere near successful in sideways scrolling without that

Mike Goldberg looks at changing sprite size and using bank switching to scroll the screen



accompanying irritating flicker.

So once again the 32-bit cavalry comes to the rescue with a built in VDU command to scroll not only the entire screen but just PART of a screen which is what we all wanted years ago! No big mystery here, it is explained in the User Guide and the example, Scroll1, demonstrates how easy it is.

Look at line 250:

```
        Window (1=whole screen)
        |
VDU23,7,0,1,1,|
          | |
          | 0 = one block: 1 = one byte
          |
          Direction of scroll
          0 right
          1 left
          2 down
          3 up
```

You can see from this example that a portion of the screen can be scrolled by simply making a window and that no wrap around occurs, thankfully. Alter the 0 after the 7 at line 250 to a 1 and watch the whole screen scroll. That's how easy it should be.

Apart from that, another really good way of scrolling is open to us owing to the 32-bit speed – that is plotting a large background sprite in a window and replotting it a bit further left each time we want to simulate a background scrolling in that direction. The diagram shows how this can be done and how extra background is added when needed.

Making the background sprite larger than the window it appears in, then simply altering the X coordinate, allows the next part of the background to be displayed, by using bank switching. When all the sprite has been shown, a further chunk of background from DATA is added to the screen when that bank is not displayed.

Then the screen itself is grabbed as a sprite and the plotting coordinates are returned to their original settings, the sprite plotted and the display switched back on – it's easier to do than write about it.

The program called *4x4* on the disk demonstrates this principal. Before running it make sure the Desktop is in Mode 15 to allow room for memory space bank switching – or it will flicker something awful – and use the following keys to move a 4x4 truck over a scrolling landscape:

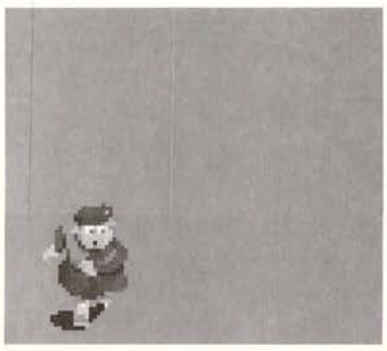
Z	Steer left
X	Steer right
"	Accelerate
?	Decelerate

If you keep each of the front wheels on the same colour pixel background, the 4x4 travels more quickly – if the pixels are different, the program assumes rough terrain and slows the vehicle down.

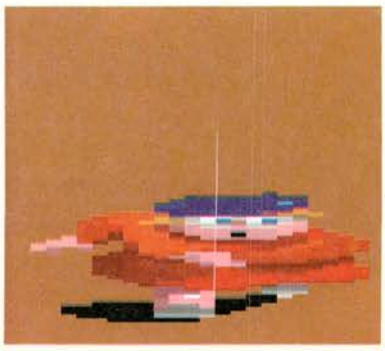
This information – *P1%* and *P2%* – along with the background sprite's X co ordinate *X%* and truck speed *sp%* is displayed at the top of the screen.

The program halts when it runs out of background DATA but you can add more to make a longer road if you wish. Six squares are added each time from DATA numbered 1 to 19 – you can see which squares are which in the CARSfile1 file.

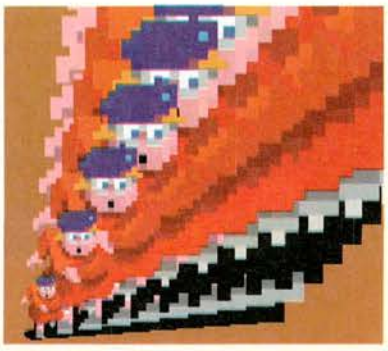
● *More about grabbing next time as I must scroll off and grab some respite.*



● *The sprite before scaling is applied*



● *Hmmm, too many chips I reckon*



● *The incredible shrinking woman*

Inspect a MORSE

Mike Cook takes a further look at the science of radio communications on your Acorn machine

IN last month's Body Build article we looked at how to receive Morse code using your computer. This month I would like to look at ways to improve reception along with more detailed instruction about what to listen for and what you will receive.

The interface was a simple phase-locked loop tone detector. This performs well with a perfectly clean signal, that is one with an absence of any interference.

However, the state of the current short wave bands is such that a small number of powerful transmitters will be able to blast through to the rest of the world. What you need is some way to filter out the other signals.

Also the phase-locked loop works best when being fed the correct audio level – too small and the tone will not trigger the detection circuit smoothly.

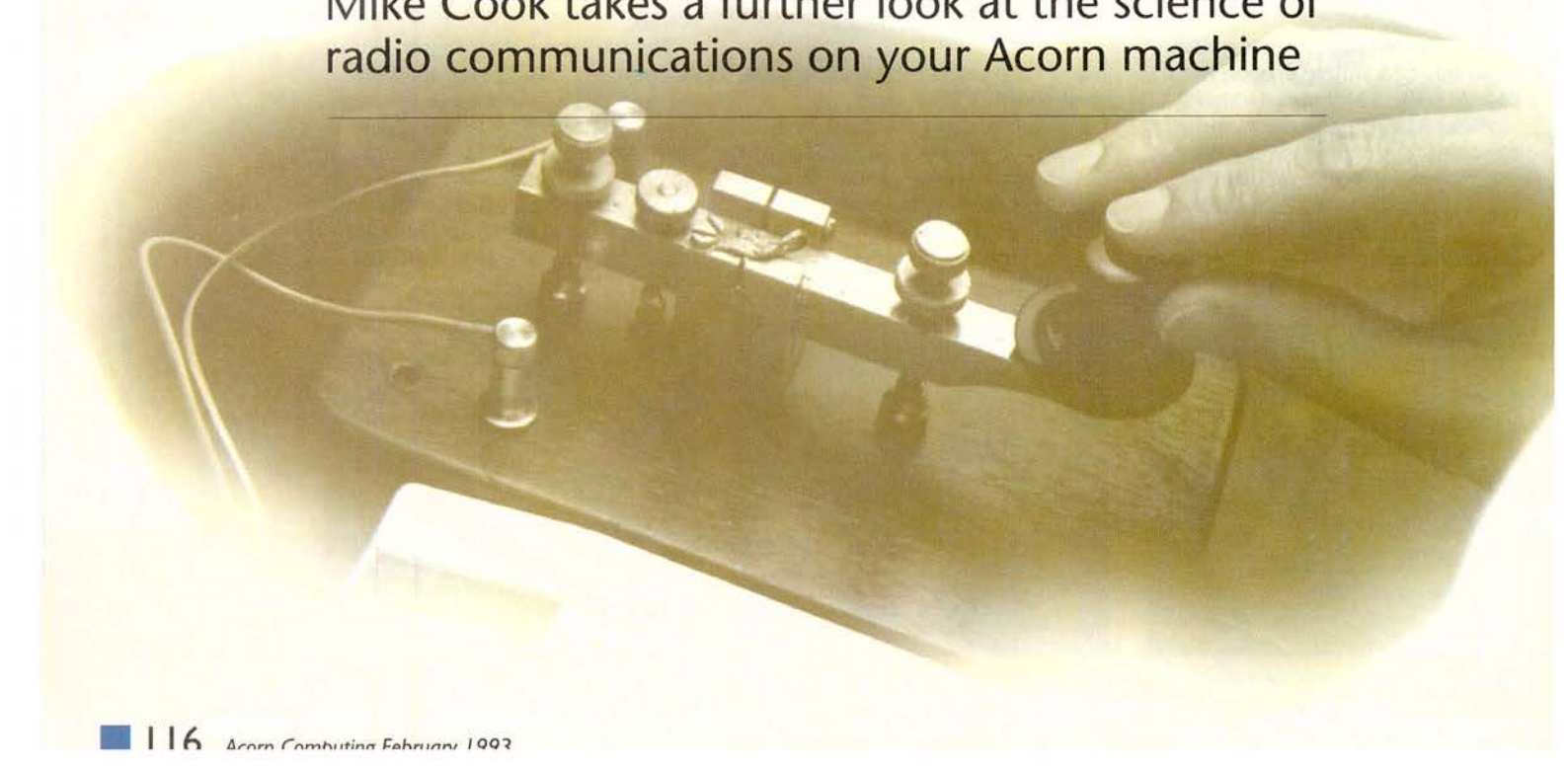
On the other hand if the signal level is too large the background signals will trigger the loop during the silence of the spaces between dots and dashes.

Therefore what we need is a front end signal processor for our phase-lock loop detector. This is shown in Figure I.

What we have here is basically an amplifier followed by state variable band pass filter. The Q or quality factor of a filter determines the sharpness of the response, the higher the Q the narrower will be the range of frequencies passed and the unwanted frequencies will be reduced.

This circuit has a Q value of 10 which is reasonably high but using three operational amplifiers in this way decrees the performance requirements of the filter. Also the resonant frequency is easily set in this type of filter, in fact it could be made tuneable.

To match the frequency of our detector we need the centre



frequency to be 1KHz – this is set by the components marked Cf and Rf in the diagram.

Many different combinations of resistors and capacitors will give this frequency but the simplest way of calculating what we need is to fix the value of the capacitors and work out the value of the resistors. This can be found from the formula:

$$Rf = 1 / 2 FC$$

where F is the resonant frequency in Hertz and C is the value of the capacitor in Farads.

If we pick a value for C as 0.47uF (0.47 10-6) the value for Rf works out at 338R. This is very close to a standard value of 330R. If you have other capacitors lying about you could use them by making the appropriate adjustments to the resistor values.

Adjusting frequency

Incidentally if you want a filter where you can adjust the frequency all you need is a twin ganged potentiometer in place of the two fixed resistors.

The components to build both the filter and last month's detector are available as Body Build pack No. 83. This includes a printed circuit layout along with a sheet about how to attach it to your computer.

The ideal way is to use the User Port as I mentioned last month. However it is an annoying fact of life that they are no longer fitted as standard on Acorn machines.

There are alternatives to purchasing an input/output card, most of which have been covered in past Body Build articles but I will just recap.

The I^2C bus provides a simple low cost and versatile interface. Alternatively, as we only need a single logic input, we can use the printer port as we did when we built the sound sampler last year. Finally as the A3010 has two joystick inputs, we can use these.

As I have said before the audio signal level fed to the phase-locked loop is quite important and so to control this the filter has an amplifier on the front end. There is some gain in the filter and this coupled with this amplifier should ensure that you can adjust it correctly. You will notice the potentiometer on the input. This allows you to adjust the signal level going in so that it is correct going to the detector.

This brings us on to the important point of how to get the audio signal out of your radio receiver.

The simplest way is to use the external speaker output, or, if one is not fitted, simply attach the wires to the back of the loud speaker. However, it is not the most satisfactory situation, because the signal level will change as you adjust the volume.

In use I found that I wanted the ➤

Ascii	Morse	Ascii	Morse	Ascii	Morse	Ascii	Morse	Ascii	Morse
E	2	D	9	B	17	+	42	?	76
T	3	K	13	X	25	1	62	"	82
I	4	G	11	C	21	6	33	,	114
A	6	O	15	Y	29	=	49	.	106
N	5	H	16	Z	19	/	41	'	94
M	7	V	24	Q	27	(	45	-	97
S	8	F	20	5	32	7	35	)	109
U	12	L	18	4	48	8	39	:	71
R	10	P	22	3	56	9	47		
W	14	J	30	2	60	0	63		

● *Ascii equivalents to transmit Morse bit patterns*

On the air

Having got the system up and running and proved it works it is time to venture on to the air. Your radio will need a good aerial and preferably a good earth in order to pick up a strong signal.

Also, you might find that interference is being picked up from your computer. This can be minimised by increasing the distance between it and the radio, ensuring that the aerial keeps clear as well.

What can you expect to pick up? A number of commercial stations transmit a Morse identification to keep the channel open when they are not being used for data transmission.

These can be received most of the time and make a good introduction to your system. If you can't pick one up try 8.482KHz, 8.452KHz and 7.637KHz.

A typical message might be *V V V DE HWN.* This might seem like rubbish but V is short hand for *transmit to me* and DE means *from* finally the HWN is the call sign of the sending station. Another piece of short hand you will see is *CQ* which means *I am calling and looking for any station to contact me.*

There are many books detailing where the callsigns come from and also what can be found on each frequency but perhaps the best is the *Guide to Utility Stations* by Klingenfuss.

If you get really hooked I suggest you look out for *The Short Wave Magazine* on your local newsagents.

The radio amateur bands also offer a useful source of Morse Code – the band frequencies are shown in Table II. There are higher frequency bands but little or no Morse on them. Generally the Morse signals are to be found at the lower frequency end of each band.

In addition the 3.5 and 144MHz bands often carry slow Morse Code transmissions intended to give radio amateurs practice in receiving.

AMATEUR RADIO BANDS

MHz
1.81 to 2.00
3.5 to 3.8
7.0 to 7.1
10.1 to 10.15
14.0 to 14.35
18.068 to 18.168
21.0 to 21.45
24.89 to 24.99
28.0 to 29.7
50.0 to 52.0
70.0 to 70.5
144.0 to 146.0

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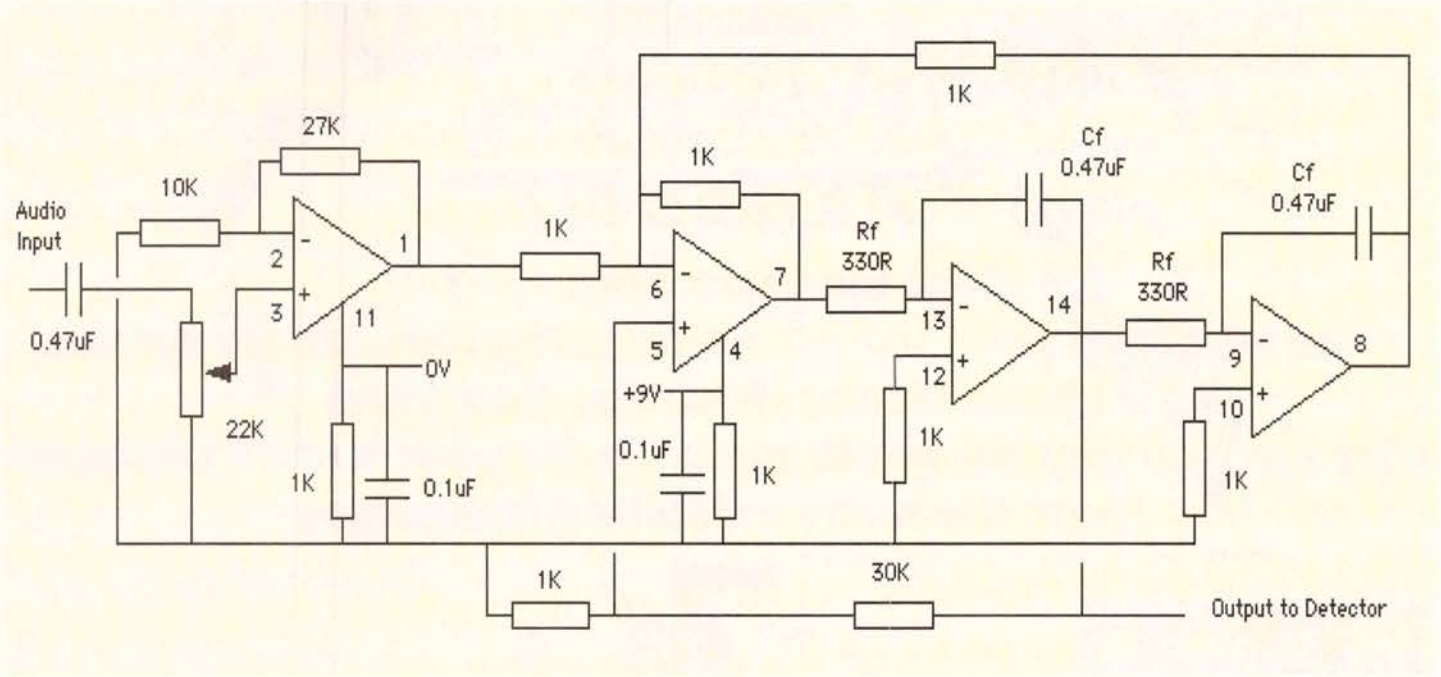

● *Figure !: The circuit of the filter*

➤

volume high while tuning in and low once I had acquired a signal. Some radios have a *tape* output – a low level output that is independent of the volume control. If one is not fitted you can get this signal from across the volume control itself – that is a wire from each side of the potentiometer, not from the central wiper.

Testing, testing

Perhaps the first thing you need to do with your setup to give you confidence that it is working is to test it. What we need is a supply of well-formed clear Morse code. Your computer can come to the rescue in the form of my keyboard generator circuit on the subscription disk.

It is suitable for all Acorn computers and is very simple to operate. Each key pressed produces its equivalent in Morse code. However, there is one exception to this:

If you press the * key you will be prompted for an operating system command. This can be any command but it was intended to be used by a *EXEC file command. By specifying a text file generated by an editor or wordprocessor you can get the computer to send a continuous stream of letters and numbers.

If you have only one computer you can't run this and receive at the same time so you are best to make a tape recording of the Morse and play that back through the receiver system. The program uses an encoding system similar to that used last month in the decoding program, that is a logic 1 marking the place where the dots and dashes finish.

Remember we need this because Morse Code is of variable length. However, for sending, this code needs to be reversed because the least significant bit is sent out first. This means that we can't use the same look up table as last month but we will need a new one as given by Table I.

This look-up table is more memory efficient than the previous one, because the Ascii characters are essentially sequential and so they pack the memory.

● *Well I hope that gives you a start in the fascinating hobby of eavesdropping on the world. See you next month when who knows what I will be up to.*

> If you have only one computer you can't run this and receive at the same time

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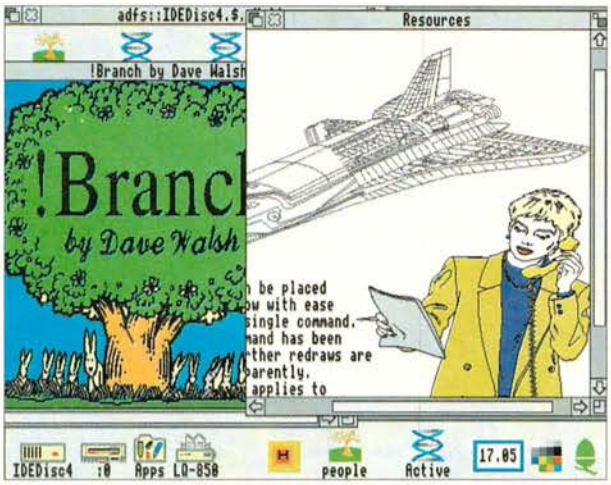
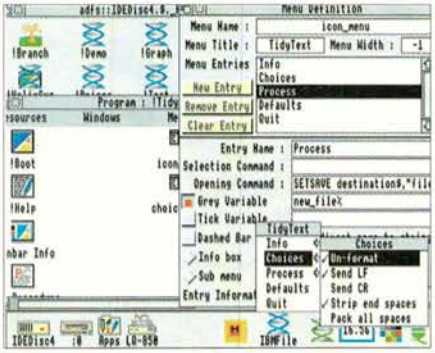


● *Window handling is automatic*



● *Creating menus becomes a doddle*

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Taking the variable principle one step further you can have *linked variables* – a feature new to HelixBasic. A variable can be attached to a specific screen item like a button or some displayed text. If the item is altered on screen the change is reflected in the linked variable and when a variable is changed the screen is updated with the new information.

For anyone wanting to delve into programming it's a great starting point and because of this we are starting a series giving you step-by-step help. You can read the first part on Page 65 of this issue of *Acorn Computing*.

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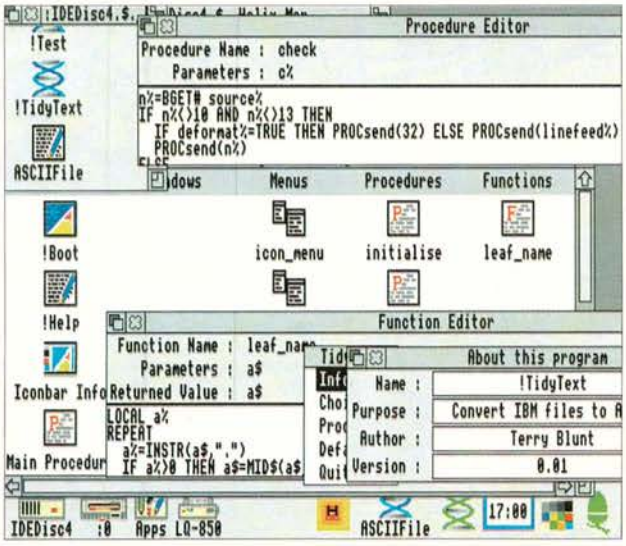

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LAMP
ER...
CYBERCAT
SLAM!
TEMPER!
I'D BEST SEE WHAT CYBERDOC'S GOT WRONG WITH HIS CIRCUITS...
SCRATCH!
OH WHAT A SURPRISE! I MIGHT'VE KNOWN.
LATER...
HEY, IT'S WORKING!
BUZZ
BLIP
HOW DID YOU DO IT CYBERCAT?!
DIM GLOW...
40 WATTS
LIKE YOU, IT WAS SIMPLE - I PUT THE BATTERIES IN!

Current affairs

The Cyberdoc exposes his electric personality

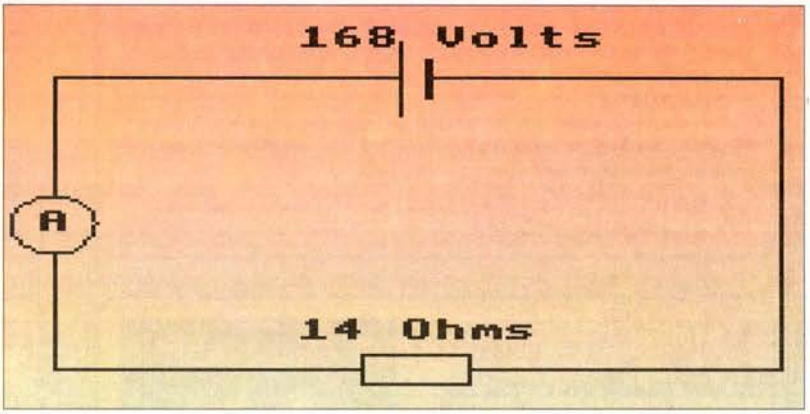
THIS month we are keeping right up to date with some current information, working out what an ammeter might read in a simple circuit. It doesn't need very complex equipment to set up these experiments, but with the kind of electric currents this program copes with you could end up blowing fuses.

It also demonstrates the patient nature of the computer. It tells you that you've done well when you get things right and puts you on the right track when you make a mess. There are no hang ups and no one tells you how dim or stupid you are for failing. In fact, those of you with exams coming up this year could find this the ideal way of revising.

Clever programmers might like to make alterations and improvements to the program – you could have it working out the power of these circuits as well as the current that flows. My original thoughts included more than one resistor, arranged in series or in parallel.

The procedures that place components on the screen have been written so more could be added easily. Sound effects and improved rewards could also be included. So, while your resistance is low get typing away. Enter the listing, save it and get working out those amps.

● *Next time we'll look at another fascinating science topic.*



● *What will the ammeter read?*

```
  10 REM WORK OUT THE CURRENT
  20 REM by The CyberDoc
  30 REM (c) Acorn Computing
  40 MODE4:S%=0:VDU19,0,4;0;19,1,3;0;
  50 FORG%=1TO10
  60 PROCcircuit
  70 PROCranddata
  80 PROCgetanswer
  90 PROCshowcorrect
 100 PRINTTAB(10,30)"PRESS SPACE":REPEA
T UNTIL INKEY-99:CLS
 110 NEXT
 120 PROCscore
 130 END
 140 DEFPROCcell(X%,Y%)
 150 MOVEX%,Y%-50
 160 DRAWX%,Y%+50
 170 MOVEX%+26,Y%+25
 180 DRAWX%+26,Y%-25
 190 MOVEX%+30,Y%-25
 200 DRAWX%+30,Y%+25
 210 ENDPROC
 220 DEFPROCresist(X%,Y%)
 230 MOVEX%,Y%-20
 240 DRAWX%,Y%+20
 250 DRAWX%+100,Y%+20
 260 DRAWX%+100,Y%-20
 270 DRAWX%,Y%-20
 280 ENDPROC
 290 DEFPROCmeter(X%,Y%)
 300 VDU29,X%;Y%;
 310 MOVE0,0
 320 MOVE0,40
 330 FORN%=0TO360STEP10
 340 DRAWSINRADN%*40,COSRADN%*40
 350 NEXT
 360 VDU5:MOVE-16,16:PRINT"A":VDU4
 370 VDU29,0;0;
 380 ENDPROC
 390 DEFPROCcircuit
 400 PROCcell(625,800)
 410 PROCresist(590,400)
 420 PROCmeter(300,600)
 430 MOVE625,800:DRAW300,800:DRAW300,64
0:MOVE300,560:DRAW300,400:DRAW590,400:MO
VE690,400:DRAW980,400:DRAW980,800:DRAW65
5,800
 440 ENDPROC
 450 DEFPROCranddata
 460 R%=RND(20)
 470 V%=R%*RND(20)
 480 VDU5:MOVE530,870:PRINT;V%;" Volts"
 490 MOVE530,470:PRINT;R%;" Ohms":VDU4
 500 ENDPROC
 510 DEFPROCgetanswer
 520 INPUTTAB(2,25)"What will the ammet
er read ",A%
 530 ENDPROC
 540 DEFPROCshowcorrect
 550 T%=V%/R%
 560 IF A%=T% PRINTTAB(5,27)"WELL DONE"
:S%=S%+1 ELSE PRINTTAB(5,27)"The correct
 answer is ";T%
 570 ENDPROC
 580 DEFPROCscore
 590 CLS:PRINTTAB(5,10)"YOU SCORED ";S%
;" OUT OF TEN"
 600 ENDPROC
```

GET IT RIGHT

```
 10 =    0 0
 20 =    0 0
 30 =    0 0
 40 = E227 7
 50 = 2A8D 0
 60 = 991B B
 70 = 2EDC C
 80 = CEE7 F
 90 = EAC0 7
100 = 483E 8
110 = 2C83 E
120 = CEC4 5
130 = FD2E 4
140 =  BB6 D
150 = 3062 2
160 = 5B84 0
170 = AE2B 1
180 = 40E4 A
190 = FA7D B
200 = 14B2 F
210 = EDOF F
220 = 6EB0 1
230 = A9F5 9
240 = C213 6
250 =  39E 9
260 = B13E 9
270 = 70B3 8
280 = EDOF 5
290 = D559 3
300 = 3208 E
310 = 7BA5 B
320 = 906B 9
330 = E3DA 8
340 = 5254 F
350 = 2C83 5
360 = F041 C
370 = EF74 E
380 = EDOF 4
390 = 74BD 5
400 = 2751 3
410 = 5CCC D
420 = 6804 D
430 = B623 6
440 = EDOF B
450 = A45F 7
460 = 5B26 9
470 = 38B3 7
480 = 3076 3
490 = 6EB3 C
500 = EDOF 7
510 = 7D25 4
520 = DBF8 0
530 = EDOF 6
540 = 5890 A
550 = 57C6 0
560 = 6009 D
570 = EDOF 3
580 = 65A0 C
590 = CF21 E
600 = EDOF C
```

Acorn COMPUTING READER OFFERS

ARCHIMEDES

10 out of 10 Maths & English

New

10 out of 10 is a series of subject-based educational software packages, each one designed to be suitable for children from Junior age to GCSE level and each of the programs takes selected sections of the National Curriculum.
Children will only learn from educational software if they use it. With that in mind, 10 out of 10 has been designed to be an enjoyable challenge for children. Questions are simple to start with so anyone can quickly gain confidence, they the progress to higher levels to maintain the interest of children at higher stages.

10 out of 10 English

This is designed around the National Curriculum for English and aims to reinforce the traditional values of the language with emphasis on: Spelling, word, nouns, verbs, adjectives, language use, punctuation, pairs, sound patterns and figures of speech.

10 out of 10 Maths

This covers the essential parts of the levels set out in attainment target 2 of the National Curriculum and includes: Addition, subtraction, multiplication, division, fractions, percentages, estimation, units and power

10 out of 10 English £22.95
10 out of 10 Maths.....£22.95

Rhapsody II

A score writing program which has been designed to allow you to create and edit your own musical scores. You can enter your music by hand one note at a time, drag the notes on to the stave or you can even use a Midi instrument to capture music in real or step time.
If you have a Midi instrument attached to your Archimedes you can play a part and then transcribe it on to a stave. This can be repeated and each part entered via the Midi keyboard and transcibed on to the appropriate stave. And of course you can play your score back through the Midi Keyboard.
The package features automatic beaming, up to 24 staves, changes of tempo and volume, ties, triplets, user defined trills and so on.
When your masterpiece is complete you could print the whole score or individual parts in the usual way.

Render Bender II

Render Bender II is another top rated graphics package from Clares. It is a powerful ray tracing package which consists of four applications:

Illuminator - a graphical front end to Render Bender which enables you to create Render Bender files using a graphics program similar to Draw.

Render Bender - the Ray Tracing part of the package. It takes a file from Illuminator and generates a ray traced image.

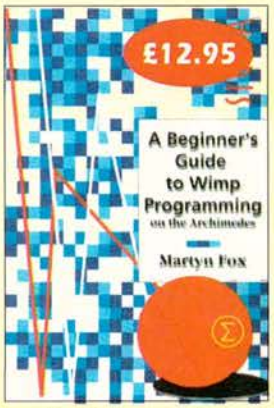
Animator - takes a sequence of screens and delta compresses them to produce an animated sequence.

Converter - converts compressed screens into sprite files and enables you to extract individual screens from an animation file.

Elite

Good games come and go, and great ones last much longer, but only one can claim to be ELITE. Generations have played it some have even beaten it, but none have tired of it.
Now, the original award-winning formula of space exploration, trading and combat has been enhanced and extended as never before, using the power of the Archimedes to present the ultimate computer game experience and, once again, the time-honoured challenge - have you got what it takes to become one of the Elite?

A Guide to WIMP Programming on the Archimedes



This book introduces the techniques to create applications that use the Wimp environment – Windows, Icons, Menus and Pointers. This means that the program runs under Desktop and also achieves multi-tasking – running at the same time as other software. Your creation can have the same appearance and 'feel' as commercially-produced packages, for example by using the standard RISC OS method of dragging an icon to load and save files. Everything is presented step-by-step – with each step fully explained and followed wherever possible by running the program and observing the result. The text is illustrated at intervals by pictures taken from the screen.

Archimedes Game Maker's Manual

Now you can find out how to use your Archimedes and Basic 5 to build high quality games whether for education or for recreation. Ideal for the experienced or novice Basic programmer, Terry Blunt takes you through the seven major aspects to writing a successful and professional product: Planning a game; Critical games stages; Graphics and animation; Arcade games; Role playing games; Strategy games; Professional tips and tricks. You can see the principles laid out in fully tested listings. This book is sure to become an essential reference written in an informative and easy to read style. If you want to know how to use the Arc's graphics capabilities and sprites to full advantage and make better games, buy this book now. It's the only one you'll ever need - quote from *Micro User August issue.*

Special Offer

BBC

Hybrid Music 5000

The Music 5000 is a powerful stereo digital synthesiser which allows you to take a piece of music all the way from a sheet score, or an idea, or even one of the supplied examples through entry, arrangement, replay and mixing to give a finished performance complete with realistic instruments and studio effects.

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The software is based on the AMPLE music language which is powerful, versatile and easy to use. It has built-in computer music notation as well as supporting a music keyboard, sound expander and Midi.

The Music 5000 will turn your BBC Micro into a computerised music production studio. The manual is written for the beginner to computer music and the Tutorial section takes you through each of the processes set by set entering, editing, arranging, mixing, performing, selecting, modifying and designing the musical instruments that you see.

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Music Albums Compendium for Hybrid Music 5000

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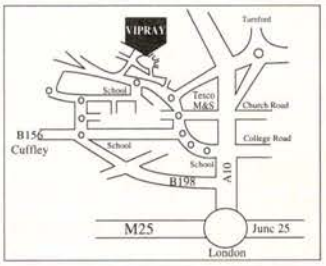

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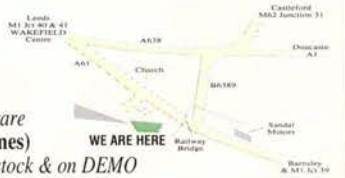

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First time around

I AM a first time computer user, having owned my Acorn 5000 for about four months. Can you recommend a book or books that are written in plain English and which will elaborate on the User Guide?

I realise there's so much that I don't understand: The difference between CSV files and data files for example – I don't even understand the difference between ADFS and ArcFS.

I don't understand why or how some sprite files are changed into applications. On some programs on some disks I get messages saying that there is no run type.

I would also like to learn to write my own programs, preferably running from the desktop rather than running purely in Basic. – **I.R. Hunter, Vale, Guernsey.**

● *A good book to start with is* Archimedes First Steps *from Dabs Press. A CSV file is a data file of a specific format with Comma Separated Values. A data file can be any format.*

The way the Acorn Risc OS system works, particular file types can be linked to specific programs, for example a draw file is linked to Draw, sprite files to Paint and so on. The message No run action specified for this file type *means that this particular file has a type not associated with a program.*

Risc OS can support a large number of different filing systems – their names always end in FS, such as ADFS, RamFS, ResourceFS and so on. The ADFS is the main disk filing system – it controls the access of files on floppy and hard disks.

An archive is a single file which holds other files in a compressed form. ArcFS is a specially written filing system that looks after archives. It makes archive handling easy because it makes the archive look like a disk itself – even though it is actually a single file stored on a disk.

If you want to write multitasking programs in Basic but avoid the complexities of the Wimp, your only choice is HelixBasic from PDK Technologies.

The wrong track?

AFTER reading the review of trackerballs in the December edition of Acorn Computing I felt I should write and correct a couple of small inaccuracies that crept into the review.

Bruce Goatly mentions that the Hi Point mouse obstructs the floppy disk drive. The mouse bracket will actually fit in two places on the Acorn A4 Portable. The obvious one is as depicted in the photo in the review which does indeed cover the floppy disk drive.

However the unit will also clip on to the first vent groove located just above the serial/mouse/keyboard sockets and still allow all three to be used, a point that I think carries some weight.

I consider it quite important for me not to use the serial port for the mouse. Where else should I connect my pocket modem/fax for my mobile office? This has the additional advantage that the clip will now easily become detached if knocked and not break the flimsy mould surround.

In addition to the standard Hi Point mouse Atomwide also offer a left-handed version. These units are custom modified and include a longer cable and the reversal of the Select and Adjust buttons.

Judging from the interest at the Acorn User show, of the hundreds of people who inquired about the Hi Point mouse, only one of them asked if we did a version for an ambidextrous or left-handed person. She was quite surprised to learn that we did and even more pleased to find that we had two there. (The other one we took home with us at the end of the show.)

The review itself was fair but I found the exclusion of these two points quite central to the view left with the reader. Of course the obvious solution to blocking the floppy disk drive is a copy of Remote FS from Atomwide. – **Martin Coulson, Engineering Director, Atomwide.**

Bruce Goatly replies: *Although I take the point that the bracket can be attached to the vent groove, to me it doesn't seem like a very secure or convenient place to do so as the groove is very shallow and set towards the back of the machine.*

I commented on this aspect mainly because the other product reviewed had proved that it can be overcome with a bit of thoughtful design. The argument that because an alternative location is possible it must be better strikes me as backwards reasoning. And how useful is Remote FS when I need to pass PC disks to my printer?

My criticism of the left-handed option came from my annoyance that the description on the box was at variance with the product inside. Some sort of note in the documentation wouldn't have gone amiss.

But I liked both products, even though, in my opinion, each had drawbacks.

More than scrolling

I WAS very pleased to see on the December Acorn Computing 32-bit subscription disk a program that made any window in Risc OS scroll when something was being dragged towards its boundary. I have found it very useful and it offers one out of the three best features that aren't included in Risc OS.

However I still haven't seen any utilities like the scroller for the Archimedes that implement the two other important features in RISC OS: The ability to highlight text in any situation and replace it, and the 3-D icons.

I have seen a few programs for Risc OS 3 that use 3-D icons but I haven't seen any utility that puts this into every window like the scroller does with scrolling.

If someone were to write a program that implements all these important features, Risc OS would then have everything that I could want. – Matt Browne, Potters Bar, Herts.

● ***While we agree that the ability to highlight text and replace in any situation would be nice, it would require a complete re-write of the operating system. The reason the Apple Mac can do it is because it has a global clipboard which any application can write to and read from.***

There is a PD program that does allow copying from place to place, but unfortunately it's not very user-friendly.

There's an international standard for 3-D icons which Computer Concepts adhere to in their design, so other programs which copy them will also be according to the standard. Risc OS 3 does have support for 3-D icons but at present there are no instructions in the Risc OS style guide about how to use them.

Mary's Ice Cream

I HAVE decided to write due to the letter published in the September issue concerning the demo !IceCream featured on the July

subscription disk. I am one of the authors of the demo and as I have also received a few letters concerning the demo *not working* I've listed below a few requirements your system must have and how to get around a few bugs which were only discovered after it was released.

Your system must have at least 2Mb of memory. You must have a MEMC1a chip fitted and be in Mode 15 when running the demo – Mode 12 causes it to crash. If you are using it from an archive (for example ArcFS) we suggest you decompress it to another disk before running. And, although it may seem obvious, you click on the Maggie Simpson icon on the icon bar to view the demo once loaded.

If you still have problems don't hesitate to write to one of the addresses in the help file. I would also like to confirm that we have not abandoned the Acorn market. Watch out for some commercial games soon which we have been working on for the last half year. – **Adam Toon (High Risc), Leicester.**

Protection systems

I HAVE an A3000 with an HCCS Hard Card 45. My daughter often has friends around to use the computer and I have quite a lot of programs on the hard disk which I want to protect.

Is there any utility which I could use to make access into the hard disk or various directories only possible with, say, a password, without physically disconnecting the hard disk? – **N.F. Halls, Egham, Surrey.**

● *There are a couple of protection systems on the market at present and we will have reviews very soon.*

Pinned to the board

AT the beginning of this year I upgraded my Atari ST for the new A5000 and for me there is no comparison: The A5000 does everything I need perfectly. The only problem I have (more of an inconvenience really) is regarding the Make Backdrop on the Pinboard option. I can create a scaled backdrop for the desktop and everything seems fine until I close a window.

When it disappears it wipes that part of the sprite, so you have a lovely backdrop with a grey hole in the middle. Also I find that if you use the Shutdown option and wish to reuse the computer you are told to press Restart. When I do this I find I cannot get the Pinboard menu to appear at all and have to resort to turning computer off and starting again.

So please put me out of my misery. Am I doing something stupid or is it not really my fault?–**Mike Chappell, Clacton on Sea, Essex.**

● *From the errors you're describing you probably have Risc OS 3 version 3.00. This had quite an early version of Pinboard and it has the bugs you describe. Version 3.10 doesn't have this problem so an upgrade is in order.*

DTP on a budget

SOME weeks ago I ordered a copy of the DTP program by Europress Publications through your magazine. It would not load, only giving a Syntax error on line 1050. I sent it back and received another copy which had the same fault. A third copy did the same. Please can you help?

I have an issue 3 BBC B with 1.2 OS, DFS 0.9, Wordwise Plus and Spellchecker III. I have had no problem running other programs.

I want a DTP to use for information sheets for my Scout group so please let me know how I can get the program to run correctly. – **John Chase, Exmouth, Devon.**

● *From the description of the roms in your BBC Micro, and its issue number, I would guess you also have Basic I. Without actually being able to test it it's likely that the DTP program contains instructions not available on Basic I.*

You can get an upgrade of Basic from Watford Electronics for £22.

Quality counts

In reply to S.A.Oldale's letter in November's Acorn Computing, it is refreshing to find that a company such as Fourth Dimension think more of the quality of the games they produce than the money they would earn by releasing a shoddy product riding on the success of the original game. I have a Commodore 64 which is now 10 years old and picking up any of the games magazines printed for this machine you are bombarded by adverts for games which are film tie-ins, arcade conversions and games whose only asset is great graphics and sound.

If 4D want to stop releases because of quality or programming problems even if there would be a chance of it being a hit then personally I think they are going on the right road. – **Faisal Qureshi, Gatley, Stockport.**

New PCs?

AFTER recently buying a second hand BBC A3000 computer with version 1.2 of the PC Emulator, I now wish to upgrade the emulator to the latest version.

I would be grateful if you could tell me which is the latest version and whether it is possible to upgrade at a reduced cost. If so, please could you tell me at what price and where I can obtain it? – **G. Willis, Macclesfield, Cheshire.**

● *The latest version of the PC Emulator is 1.8 and it's now called PC Soft. An upgrade is available from Acorn Direct (0933 279300) for £29 plus VAT.*

Bouquet

I HAD Risc OS 3 recently installed by Fairhurst Instruments of Wilmslow, then experienced trouble with my floppy disk drive. Their engineer located and rectified the fault most efficiently.

The pleasant way I was received and my problem sorted out deserves recognition, so perhaps you can spare the space to include this note in Acorn Computing. – **G. H. Ireland, Manchester.**

All programs printed in this magazine are exact reproductions of listings taken from the running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur, corrections are published as a matter of urgency.

Should you encounter error messages when you type in the program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in these pages

Want to write to us? The address is:

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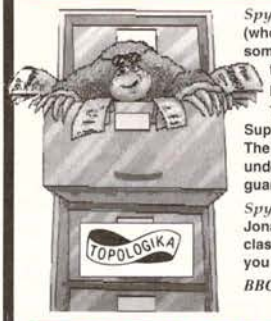

SpySnatcher challenges you to identify and catch the *Mole* (whose premises are known as *The Zoo*). This person, last night sometime, removed the plans of the *Sonic Macrothrodule* from the chief's safe, and is preparing to leak them to a hostile power (Ruritania).

The chief, Sir Arthur Cayley, in co-operation with Superintendent Hardy of Special Branch, leaves you to explore The Zoo to see what evidence you can find. Because everyone is under suspicion, there will be trouble if you run into the security guard, or any personnel who happen to be working late!

SpySnatcher is Jon Thackray (author of *Acheton*) and Jonathan Partington's (*Hamil, Avon*, etc.) newest and best classic adventure game yet. Inspired by THAT book, it will keep you on the edge of sanity — just!

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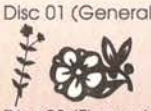
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SCANNING IS BELIEVING

The ScanLight range of scanners has become the most popular for the Archimedes. We now introduce a new updated version of ScanLight 256, a true 256 greyscale hand held scanner, along with new scanner software and a new low price.

The ScanLight, version 2 software, now offers;

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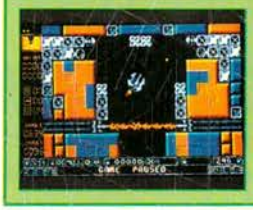

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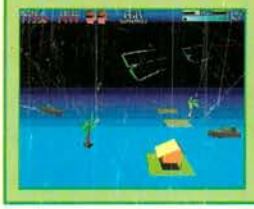

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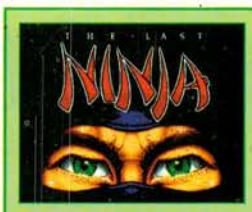

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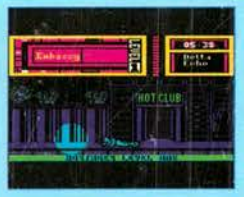

PLAY IT AGAIN SAM 16

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Vertigo – Balance your way around fifty different weird and wonderful structures to capture the diamonds. Very frustrating and addictive.

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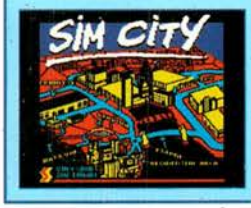

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